

‘Autistic psychopathy’ in childhood

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In what follows, I will describe a particularly interesting and highly recognisable type of child. The children I will present all have in common a fundamental disturbance which manifests itself in their physical appearance, expressive functions and, indeed, their whole behaviour. This disturbance results in severe and characteristic difficulties of social integration. In many cases the social problems are so profound that they overshadow everything else. In some cases, however, the problems are compensated by a high level of original thought and experience. This can often lead to exceptional achievements in later life. With the type of personality disorder presented here we can demonstrate the truth of the claim that exceptional human beings must be given exceptional educational treatment, treatment which takes account of their special difficulties. Further, we can show that despite abnormality human beings can fulfil their social role within the community, especially if they find understanding, love and guidance. There are many reasons for describing in detail this type of abnormally developing child. Not the least of them is that these children raise questions of central importance to psychology and education.

Name and Concept

I have chosen the label autism in an effort to define the basic disorder that generates the abnormal personality structure of the children we are concerned with here. The name derived from the concept of autism in schizophrenia. Autism in this sense refers to a fundamental disturbance of contact that is manifest in an extreme form in schizophrenic patients. The name ‘autism’, coined by Bleuler,

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is undoubtedly one of the greatest linguistic and conceptual creations in medical nomenclature.

Human beings normally live in constant interaction with their environment, and react to it continually. However, 'autists' have severely disturbed and considerably limited interaction. The autist is only himself (cf. the Greek word *autos*) and is not an active member of a greater organism which he is influence by and which he influences constantly. Bleuler's formulations of schizophrenic autism include the following:

The schizophrenic patient loses contact with reality to varying degrees. He ceases to care about the real world. He shows a lack of initiative, aimlessness, neglect of reality, distractedness, but also impulsive and bizarre behaviour. Many of his actions, as well as his whole attitude to life, are insufficiently externally motivated. Both intensity and extent of attention are disordered. There is lack of persistence, but occasionally certain goals are held on to tenaciously. One often finds 'whimsical obstinacy', that is, the patient wants something and at the same time the opposite. One finds obsessional acts, automatic acts, automatic commands etc. Schizophrenic patients often live in an imaginary world of wish fulfillment and ideas of persecution.

Bleuler here describes a particular type of thinking which he calls 'autistic' or 'dereistic' thinking. This thinking is not goal-directed but is guided by desires and affects. Apart from schizophrenia, where it is at its most bizarre, autistic or dereistic thinking can also be found in people who are not psychotic, and indeed in everyday life, for example, in superstition or pseudo-science. However, this type of thinking does not play a role in the children we are concerned with here. At most, there may be occasional hints at this particular type of thought disturbance.

All but the last mentioned feature of Bleuler's concept of autism can be found in the type of personality disorder to be described here. While the schizophrenic patient seems to show progressive loss of contact, the children we are discussing lack contact from the start. Autism is the paramount feature in both cases. It totally colours affect, intellect, will and action. Essential symptom of schizophrenia and the symptoms of our children can thus be brought under a common denominator: the shutting-off of relations between self and the outside world. However, unlike schizophrenic patients, our children do not show a disintegration of personality. They are therefore not psychotic, instead they show a greater or lesser degree of psychopathy, the fundamental disorder that we have identified in our children affects all expressions of their personality and can explain their difficulties and deficits as well as their special achievements. Once one has learnt to pay attention to the characteristic manifestations of autism, one realises that they are

not at all rare in children, especially in their milder forms. A few prototypical cases will be described below.

Fritz V.

We start with a highly unusual boy who shows a very severe impairment in social integration. This boy was born in June 1933 and came for observation to the Heilpadagogische Abteilung (Remedial Department) of the University Paediatric Clinic in Vienna in the autumn of 1939. He was referred by his school as he was considered to be 'uneducable' by the end of his first day there.

Fritz was the first child of his parents. He had a brother two years younger, who was also somewhat difficult but not nearly as deviant as Fritz. Birth was normal. Motor milestones were rather delayed. He learnt to walk at fourteen months, and for a long time was extremely clumsy and unable to do things for himself. He learnt the practical routines of daily life very late and with great difficulty. This will be looked at in more detail later. In contrast, he learnt to talk very early and spoke his first words at ten months, well before he could walk. He quickly learnt to express himself in sentences and soon talked 'like an adult'. Nothing was reported about unusual childhood illnesses and there was no indication of any brain disease.

From the earliest age Fritz never did what he was told. He did just what he wanted to, or the opposite of what he was told. He was always restless and fidgety, and tended to grab everything within reach. Prohibitions did not deter him. Since he had a pronounced destructive urge, anything that got into his hands was soon torn or broken.

He was never able to become integrated into a group of playing children. He never got on with other children and, in fact, was not interested in them. They only 'wound him up'. He quickly became aggressive and lashed out with anything he could get hold of (once with a hammer), regardless of the danger to others. For this he was thrown out of kindergarten after only a few days. Similarly, because of his totally uninhibited behaviour, his schooling failed on the first day. He had attacked other children, walked nonchalantly about in class and tried to demolish the coat-racks.

Fritz did not know the meaning of respect and was utterly indifferent to the authority of adults. He lacked distance and talked without shyness even to strangers. Although he acquired language very early, it was impossible to teach him the polite form of address ('Sie'). He called everybody 'Du'. Another strange phe-

nomenon in this boy was the occurrence of certain stereotypic movements and habits.

Family history

The mother stemmed from the family of one of the greatest Austrian poets. Her side of the family were mostly intellectuals and all were, according to her, in the mad-genius mould. Several wrote poetry 'quite beautifully'. A sister of the maternal grandfather, 'a brilliant pedagogue', lived as an eccentric recluse. The maternal grandfather and several of his relatives had been expelled from state schools and had to attend private school. Fritz strongly resembled this grandfather. He too was said to have been an exceptionally difficult child and now rather resembled the caricature of a scholar, preoccupied with his own thoughts and out of touch with the real world.

The mother herself was very similar to the boy. This similarity was particularly striking given that she was a woman, since, in general, one would expect a higher degree of intuitive social adaptation in women, more emotion than intellect. In the way she moved and spoke, indeed in her whole demeanour, she seemed strange and rather a loner. Very characteristic, for instance, was the situation when mother and son walked to the hospital school together, but each by themselves. The mother slouched along, hands held behind her back and apparently oblivious to the world. Beside her the boy was rushing to and fro, doing mischief. They gave the appearance of having absolutely nothing to do with each other. One could not help thinking that the mother found it difficult to cope not only with her child but with the practical matters of life. She was certainly not up to running the household. Even living, as she did, in the upper echelons of society, she always looked unkempt, unwashed almost, and was always badly dressed. She was also, clearly, not coping with the physical care of her son. It has to be said, however, that this was a particularly difficult problem. The mother knew her son through and through and understood his difficulties very well. She tried to find similar traits in herself and in her relations and talked about this eloquently. She emphasised again and again that she was at the end of her tether, and this was indeed obvious as soon as one saw them both together.

It was clear that this state of affairs was due not only to the boy's own internally caused problems, but also to the mother's own problems in relating to the outside world, showing as she did a limited intuitive social understanding. Take the following typical trait: whenever things became too much for her at home she would simply walk out on her family and travel to her beloved mountains. She

would stay there for a week or more at a time, leaving the rest of the family to struggle for themselves.

The boy's father came from an ordinary farming family, with no reported peculiarities. He had made a successful career for himself, eventually becoming a high-ranking civil servant. He married late and was fifty-five years old when his first child was born. The father was a withdrawn and reticent man who did not give much away about himself. He clearly hated to talk about himself and his interests. He was extremely correct and pedantic and kept a more than usual distance.

Appearance and expressive characteristics

The boy was of a rather delicate build and very tall, 11 cm above the average height for his age. He was thin, fine-boned and his musculature was weakly developed. His skin was of yellowish-grey pallor. The veins were clearly visible on the temples and upper parts of the body. His posture was slouched, his shoulders slumped, with the shoulder blades protruding. Otherwise his appearance was unremarkable. The face showed fine and aristocratic features, prematurely differentiated in a six-year-old. Any baby features had long since gone.

His eye gaze was strikingly odd. It was generally directed into the void, but was occasionally interrupted by a momentary malignant glimmer. When somebody was talking to him he did not enter into the sort of eye contact which would normally be fundamental to conversation. He darted short 'peripheral' looks and glanced at both people and objects only fleetingly. It was 'as if he wasn't there'. The same impression could be gained of his voice, which was high and thin and sounded far away.

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The content of his speech too was completely different from what one would expect of a normal child: only rarely was what he said in answer to a question. One usually had to ask a question many times before it registered. When he did

answer, once in a while, the answer was as short as possible. Often, however, it was sheer luck if he reacted at all! Either he simply did not answer, or he turned away while beating a rhythm or indulging in some other stereotypic behaviour. Occasionally, he repeated the question or a single word from the question that had apparently made an impression on him; sometimes he sang, 'I don't like to say that . . . '.

Behaviour on the ward

Posture, eye gaze, voice and speech made it obvious at first glance that the boy's relations to the outside world were extremely limited. This was instantly apparent also in his behaviour with other children. From the moment he set foot on the ward he stood out from the rest of the group, and this did not change. He remained an outsider and never took much notice of the world around him. It was impossible to get him to join in group play, but neither could he play properly by himself. He just did not know what to do with the toys he was given. For instance, he put building blocks in his mouth and chewed them, or he threw them under the beds. The noise this created seemed to give him pleasure.

While appropriate reactions to people, things and situations were largely absent, he gave full rein to his own internally generated impulses. These were unrelated to outside stimuli. Most conspicuous in this respect were his stereotypic movements: he would suddenly start to beat rhythmically on his thighs, bang loudly on the table, hit the wall, hit another person or jump around the room. He would do this without taking any notice of the amazement of those around him. For the most part, these impulses occurred out of the blue, but sometimes they were provoked, for instance, when certain demands were made which acted as undesirable intrusions into his encapsulated personality. Even when one was able to get him to respond for a short time, it was not long before he became unhappy, and there would eventually be an outburst of shouts or odd stereotypic movements. On other occasions, it was sheer restlessness which seemed to drive him to engage in stereotypic behaviour. Whenever the ward was in a noisy, happy or restless mood, for instance, when there was a competitive game going on, then one could be sure that he would soon break out of the group and start jumping or hitting.

In addition to these problems there were also various nasty and unacceptable habits. He 'ate' the most impossible things, for example, whole pencils, wood and lead, or paper, in considerable quantities. Not surprisingly, he frequently had stomach problems. He was in the habit of licking the table and then playing around

with his spit. He also committed the mischievous acts which are characteristic of this type of child. The same boy who sat there listlessly with an absent look on his face would suddenly jump up with his eyes lit up, and before one could do anything, he would have done something mischievous. Perhaps he would knock everything off the table or bash another child. Of course he would always choose the smaller, more helpless ones to hit, who became very afraid of him. Perhaps he would turn on the lights or the water, or suddenly run away from his mother or another accompanying adult, to be caught only with difficulty. Then again, he may have thrown himself into a puddle so that he would be spattered with mud from head to foot. These impulsive acts occurred without any warning and were therefore extremely difficult to manage or control. In each of these situations it was always the worst, most embarrassing, most dangerous thing that happened. The boy seemed to have a special sense for this, and yet he appeared to take hardly any notice of the world around him! No wonder the malicious behaviour of these children so often appears altogether 'calculated'.

As one would expect, the conduct disorders were particularly gross when demands were made on him, for instance, when one tried to give him something to do or to teach him something. This was regardless of whether he was in a group with other children or on his own. It required great skill to make him join some physical exercise or work even for a short while. Apart from his intransigence to any requests, he was not good at PE because he was motorically very clumsy. He was never physically relaxed. He never 'swung' in any rhythm. He had no mastery over his body. It was not surprising, therefore, that he constantly tried to run away from the PE group or from the work-table. It was particularly in these situations that he would start jumping, hitting, climbing on the beds or begin some stereotyped sing-song.

Similar difficulties were encountered when one worked with him on his own. An example was his behaviour during intelligence tests. It turned out that it was impossible to get a good idea of his true intellectual abilities using standard intelligence tests. The results were highly contradictory. His failure to respond to particular test questions seemed to be a matter of chance and a result of his profound contact disturbance. Testing was extremely difficult to carry out. He constantly jumped up or smacked the experimenter on the hand. He would repeatedly drop himself from chair to floor and then enjoy being firmly placed back in his chair again. Often, instead of answering a question, he said 'Nothing at all, nobody at all', grinning horridly. Occasionally he stereotypically repeated the question or a meaningless word or perhaps a word he made up. Questions and requests had to be repeated constantly. It was a matter of luck to catch him at exactly the moment

he was ready to respond, when he would occasionally perform considerably in advance of his age. Some examples are given below.

Construction Test (a figure made out of sticks, and consisting of two squares and four triangles, is exposed for a few seconds and has to be copied from memory). Even though he had only half-glanced at this figure, he correctly constructed it within a few seconds, or rather, he threw the little sticks so that it was perfectly possible to recognise the correct figure, but he could not be persuaded to arrange them properly.

Rhythm Imitation (various rhythms are beaten out to be copied). In spite of many attempts he could not be persuaded to do this task.

Memory for digits He very readily repeated six digits. One was left with a strong impression that he could go further, except that he just did not feel like it. According to the Binet test, the repetition of six digits is expected at the age of ten, while the boy was only six years old.

Memory for sentences This test too could not be properly evaluated. He deliberately repeated wrongly many of the sentences. However, it was clear that he could achieve at least age-appropriate performance.

Similarities Some questions were not answered at all, others got a nonsensical answer. For instance, for the item tree and bush, he just said, 'There is a difference'. For fly and butterfly, he said, 'Because he has a different name', 'Because the butterfly is snowed, snowed with snow'; asked about the colour, he said, 'Because he is red and blue, and the fly is brown and black'. For the item wood and glass, he answered, 'Because the glass is more glassy and the wood is more woody'. For cow and calf, he replied, 'lammerlammerlammer . . .'. To the question 'Which is the bigger one?' he said, 'The cow I would like to have the pen now'.

Enough examples from the intelligence test. We did not obtain an accurate picture of the boy's intellectual abilities. This, of course, was hardly to be expected. First, he rarely reacted to stimuli appropriately but followed his own internally generated impulses. Secondly, he could not engage in the lively reciprocity of normal social interaction. In order to judge his abilities it was therefore necessary to look at his spontaneous productions.

As the parents had already pointed out, he often surprised us with remarks that betrayed an excellent apprehension of a situation and an accurate judgement

of people. This was the more amazing as he apparently never took any notice of his environment. Above all, from very early on he had shown an interest in numbers and calculations. He had learnt to count to over 100 and was able to calculate within that number-space with great fluency. This was without anybody ever having tried to teach him — apart from answering occasional questions he asked. His extraordinary calculating ability had been reported by the parents and was verified by us.

Incidentally, we found, in general, that the parents had an excellent understanding of their child's intellectual abilities. Such knowledge as the boy possessed was not accessible by questioning at will. Rather, it showed itself accidentally, especially during his time on the ward, where he was given individual tuition. Even before any systematic teaching had begun, he had mastered calculations with numbers over ten. Of course, quite a number of bright children are able to do this before starting school at six. However, his ability to use fractions was unusual, and was revealed quite incidentally during his first year of instruction.

The mother reported that at the very beginning of schooling he set himself the problem — what is bigger $\frac{1}{16}$ or $\frac{1}{18}$ — and then solved it with ease. When somebody asked for fun, just to test the limits of his ability, 'What is $\frac{2}{3}$, of 120?', he instantly gave the right answer, '80'. Similarly, he surprised everybody with his grasp of the concept of negative numbers, which he had apparently gained wholly by himself; it came out with his remark that 3 minus 5 equals '2 under zero'. At the end of the first school year, he was also fluent in solving problems of the type, "If 2 workers do a job in a certain amount of time, how much time do 6 workers need?"

We see here something that we have come across in almost all autistic individuals, a special interest which enables them to achieve quite extraordinary levels of performance in a certain area. This, then, throws some light on the question of their intelligence. However, even now the answer remains problematic since the findings can be contradictory and different testers can come to different intelligence estimates. Clearly, it is possible to consider such individuals both as child prodigies and as imbeciles with ample justification.

Now, a word about the boy's relations to people. At first glance, it seemed as if these did not exist or existed only in a negative sense, in mischief and aggression. This, however, was not quite true. Again, accidentally, on rare occasions, he showed that he knew intuitively, and indeed unfailingly, which person really meant well by him, and would even reciprocate at times.

Implications of remedial education

It is obvious that in the present case there were particularly difficult educational problems. Let us consider first the essential prerequisites which make a normal child learn and integrate into school life, in terms not just of the subject matter taught, but also of the appropriate social behavior. Learning the appropriate behaviour does not depend primarily on intellectual understanding. Well before the child can understand the spoken words of his teacher, even in early infancy, he learns to comply.

He complies with and responds to the glance of the mother, the tone of her voice, the look of her face, and to her gestures rather than the words themselves. In short, he learns to respond to the infinitely rich display of human expressive phenomena. While the young child cannot understand this consciously, he none the less behaves accordingly. The child stands in uninterrupted reciprocity with his care-giver, constantly building up his own responses and modifying them according to the positive or negative outcome of his encounters. Clearly, an undisturbed relationship with his environment is an essential requirement. In Fritz's case, however, it is precisely this wonderful regulating mechanism which is severely disturbed.

It is a sign of this disturbance that Fritz's expressions themselves are abnormal. How odd is his use of eye contact! Normally, a great deal of the outside world is received by the eye and communicated by the eye to others. How odd is his voice, how odd his manner of speaking and his way of moving! It is no surprise, therefore, that this boy also lacks understanding of other people's expressions and cannot react to them appropriately.

Let us consider this issue again from a different point of view. It is not the content of words that makes a child comply with requests, by processing them intellectually. It is, above all, the affect of the care-giver which speaks through the words. Therefore, when making requests, it does not really matter what the care-giver says or how well-founded the request is. The point is not to demonstrate the necessity of compliance and consequence of non-compliance — only bad teachers do this. What matters is the way in which the request is made, that is, how powerful the affects are which underlie the words. These affects can be understood even by the infant, the foreigner or the animal, none of whom is able to comprehend the literal meaning.

In our particular case (Fritz), as indeed, in all such cases, the affective side was disturbed to a large extent, as should have become apparent from the description so far. The boy's emotions were indeed hard to comprehend. It was almost impos-

sible to know what would make him laugh or jump up and down with happiness, and what would make him angry and aggressive. It was impossible to know what feelings were the basis of his stereotypic activities or what it was that could suddenly make him affectionate. So much of what he did was abrupt and seemed to have no basis in the situation itself. Since the affectivity of the boy was so deviant and it was hard to understand his feelings, it is not surprising that his reactions to the feelings of his care-givers were also inappropriate.

In fact, it is typical of children such as Fritz V. that they do not comply with requests or orders that are affectively charged with anger, kindness, persuasion or flattery. Instead, they respond with negativistic, naughty and aggressive behaviour. While demonstrations of love, affection and flattery are pleasing to normal children and often induce in them the desired behaviour, such approaches only succeeded in irritating Fritz, as well as all other similar children. While anger and threats usually succeed in bending obstinacy in normal children and often make them compliant after all, the opposite is true of autistic children. For them, the affect of the care-giver may provide a sensation which they relish and thus seek to provoke. "I am so horrible because you are cross so nicely", said one such boy to his teacher.

It is difficult to know what the appropriate pedagogic approach should be. As with all genuine teaching, it should not be based primarily on logical deduction but rather on pedagogic intuition. Nevertheless, it is possible to state a few principles which are based on our experience with such children.

The first is that all educational transactions have to be done with the affect 'turned off'. The teacher must never become angry nor should he aim to become loved. It will never do to appear quiet and calm on the outside while one is boiling inside. Yet this is only too likely, given the negativism and seemingly calculated naughtiness of autistic children! The teacher must at all costs be calm and collected and must remain in control. He should give his instructions in a cool and objective manner, without being intrusive. A lesson with such a child may look easy and appear to run along in a calm, self-evident manner. It may even seem that the child is simply allowed to get away with everything, any teaching being merely incidental. Nothing could be further from the truth. In reality, the guidance of these children requires a high degree of effort and concentration. The teacher needs a particular inner strength and confidence which is not at all easy to maintain!

There is a great danger of getting involved in endless arguments with these children, be it in order to prove that they are wrong or to bring them towards some insight. This is especially true for the parents, who frequently find themselves

trapped in endless discussions. On the other hand, it often works simply to cut short negativistic talk: for example, Fritz is tired of doing sums and sings, "I don't want to do sums any more, I don't want to do sums any more", the teacher replies, "No, you don't need to do sums", and continuing in the same calm tone of voice, "How much is . . .?" Primitive as they are, such methods are, in our experience, often successful.

There is an important point to be made here. Paradoxical as it may seem, the children are negativistic and highly suggestible at the same time.

Indeed, there is a kind of automatic or reflex obedience. This behaviour is known to occur in schizophrenics. It could well be that these two disorders of the will are closely related! With our children we have repeatedly found that if one makes requests in an automaton-like and stereotyped way, for instance, speaking softly in the same sing-song that they use themselves, one senses that they have to obey, seemingly unable to resist the command.

Another pedagogic trick is to announce any educational measures not as personal requests, but as objective impersonal law. But more of this later.

I have already mentioned that behind the cool and objective interaction with Fritz and all similar children there needs to be genuine care and kindness if one wants to achieve anything at all. These children often show a surprising sensitivity to the personality of the teacher. However difficult they are even under optimal conditions, they can be guided and taught, but only by those who give them true understanding and genuine affection, people who show kindness towards them and, yes, humour. The teacher's underlying emotional attitude influences, involuntarily and unconsciously, the mood and behaviour of the child. Of course, the management and guidance of such children essentially requires a proper knowledge of their peculiarities as well as genuine pedagogic talent and experience. Mere teaching efficiency is not enough.

It was clear from the start that Fritz, with his considerable problems, could not be taught in a class. For one thing, any degree of restlessness around him would have irritated him and made concentration impossible. For another, he himself would have disrupted the class and destroyed work done by the others. Consider only his negativism and his uninhibited, impulsive behaviour. This is why we gave him a personal tutor on the ward, with the consent of the educational authority. Even then, teaching was not easy, as should be clear from the above remarks. Even mathematics lessons were problematic when, given his special talent in this area, one might have expected an easier time. Of course, if a problem turned up which happened to interest him at that moment (see previous examples), then he 'tuned in' and surprised us all by his quick and excellent grasp. However, ordinary math-

ematics — sums — made for much tedious effort. As we will see with the other cases even with the brightest children of this type, the automatisation of learning, that is, the setting up of routine thought processes, proceeds only with the utmost difficulty. Writing was an especially difficult subject, as we expected, because his motor clumsiness, in addition to his general problems, hampered him a good deal. In his tense fist the pencil could not run smoothly. A whole page would suddenly become covered with big swirls, the exercise book would be drilled full of holes, if not torn up. In the end it was possible to teach him to write only by making him trace letters and words which were written in red pencil. This was to guide him to make the right movements. However, his handwriting has so far been atrocious. Orthography too was difficult to automatise. He used to write the whole sentence in one go, without separating the words. He was able to spell correctly when forced to be careful. However, he made the silliest mistakes when left to his own devices. Learning to read, in particular sounding out words, proceeded with moderate difficulties. It was almost impossible to teach him the simple skills needed in everyday life. While observing such a lesson, one could not help feeling that he was not listening at all, only making mischief. It was, therefore, the more surprising, as became apparent occasionally, for example through reports from the mother, that he had managed to learn quite a lot. It was typical of Fritz, as of all similar children, that he seemed to see a lot using only 'peripheral vision', or to take in things 'from the edge of attention'. Yet these children are able to analyse and retain what they catch in such glimpses. Their active and passive attention is very disturbed; they have difficulty in retrieving their knowledge, which is revealed often only by chance. Nevertheless, their thoughts can be unusually rich. They are good at logical thinking, and the ability to abstract is particularly good. It does often seem that even in perfectly normal people an increased distance to the outside world is a prerequisite for excellence in abstract thinking.

Despite the difficulties we had in teaching this boy we managed to get him to pass successfully a state school examination at the end of the school year. The exceptional examination situation was powerful enough to make him more or less behave himself, and he showed good concentration. Naturally, he astounded the examiners in mathematics. Now Fritz attends the third form of a primary school as an external pupil, without having lost a school year so far. Whether and when he will be able to visit a secondary school we do not know.

Differential Diagnosis

Considering the highly abnormal behaviour of Fritz, one has to ask whether there is in fact some more severe disturbance and not merely a personality disorder. There are two possibilities: childhood schizophrenia and a post-encephalitic state.

There is much that is reminiscent of schizophrenia in Fritz: the extremely limited contact, the automaton-like behaviour, the stereotypies. Against this diagnosis, however, speaks the fact that there is no sign of progressive deterioration, no characteristic acute onset of alarming florid symptoms (severe anxiety and hallucinations), nor are there any delusions. Although Fritz shows a very deviant personality, his personality remains the same and can largely be seen as deriving from father and mother, and their families. In fact, his personality shows steady development, and on the whole this is resulting in improved adaptation to the environment. Lastly, the complex overall clinical impression, which cannot be pinned down further, is completely different from that of a schizophrenic. There, one has the uncanny feeling of a destruction of personality which remains incomprehensible and incalculable, even if it is perhaps possible to some extent to stave off disintegration through pedagogic means. Here, however, there are numerous genuine relationships, a degree of reciprocal understanding and a genuine chance for remedial education.

One has also to consider the possibility of a post-encephalitic personality disorder. As we shall see below, there are a number of similarities between autistic children and brain-damaged children who either had a birth injury or encephalitis. Suffice it to say here that there was no reason for thinking this applied in the case of Fritz. There were certainly none of the symptoms that are always present in post-encephalitic cases (though these are sometimes easily overlooked). There was not the slightest evidence of neurological or vegetative symptoms such as strabismus, facial rigidity, subtle spastic paresis, increased salivation or other endocrine signs.

Harro L.

Our second case is a boy who also shows the main characteristics of autism in highly typical form, except that the relationships to the outside world are not as severely disturbed as in our first case. Instead, the positive aspects of autism become more obvious: the independence in thought, experience and speech.

This eight-and-a-half-year-old boy was referred to us by his school as unman-

ageable. He was in his third year at school, but was repeating the second year because he had failed in all subjects. The teacher believed that he 'could if he only wanted to'. Occasionally, he made surprisingly clever remarks of a maturity way beyond his age. On the other hand, he often refused to co-operate, sometimes using bad language, for example, "this is far too stupid for me", which threatened to undermine the discipline of the whole class. He hardly ever did his homework. Worse still were his conduct problems. He rarely did what he was told but answered back and with such cheek that the teacher had given up asking him so as not to lose face in front of the class. On the one hand, Harro did not do what he was supposed to do, on the other, he did exactly what he wanted to do himself and without considering the consequences. He left his desk during lessons and crawled on the floor on all fours. One of the principal reasons for his being referred by the school was his savage tendency to fight. Little things drove him to senseless fury, whereupon he attacked other children, gnashing his teeth and hitting out blindly. This was dangerous because he was not a skilled fighter. Children who are skilled fighters know exactly how far they can go and can control their movements so that they hardly ever cause real trouble. Harro was anything but a skilled fighter, and since he was very clumsy, could not control his movements and had no idea where to aim, he often allegedly caused injury to others. He was said to be extremely sensitive to teasing, and yet in many ways, with his strange and comical behaviour he directly provoked teasing.

He was said to be an inveterate 'liar'. He did not lie in order to get out of something that he had done — this was certainly not the problem, as he always told the truth very brazenly — but he told long, fantastic stories, his confabulations becoming ever more strange and incoherent.

His early independence in certain things was outstanding. Since his second school year, that is, since he was only seven years old, he had travelled alone by train to school in Vienna. His parents lived in a village approximately 25 km from Vienna. The father, who wanted his son to have better opportunities, disdained the village school and therefore sent him to school in Vienna.

On a more unpleasant note, Harro also showed his social unconcern in sexual play with other boys, allegedly going as far as homosexual acts, coitus attempts.

From the family history, we note that Harro was an only child. He was a forceps delivery, but no disturbances were observed that might relate to any birth injury. His mental and physical development was unremarkable. As a small child, he was supposed to have been perfectly ordinary, except that his stubbornness and independence were evident very early.

The father, who brought the child to us, was a strange man, and very similar

to his son. He appeared to be something of an adventurer. He originally came from Siebenburgen (Transylvania) and during the First World War, under great danger from the Romanian army, fled to Austria via Russia. By profession he was a painter and sculptor, but out of financial necessity he was making brooms and brushes. While there was severe unemployment at the time we saw the boy, the contrast of the two jobs was certainly striking. The father, who himself comes from peasant stock, is a typical intellectual. He professed to be completely and painfully self-taught. One could make out from what he said that he had nothing to do with anyone in the village where he lived and where he must have been considered highly eccentric. He said himself that he was nervous and highly strung but that 'he controlled himself to such an extent that he appeared to be indifferent'.

The mother, whom we never saw (we felt that the father did not want us to see her) was also supposed to be highly strung. In both the father's and mother's families there were said to be many highly strung people. No more details were obtained.

Appearance and expressive characteristics

Harro was a rather small boy, 4 cm below average in height, and of stocky and muscular build. His arms and legs looked as if they were too short for his body. In some ways, he looked like a miniature adult, especially since his facial features were very mature. His typically lost gaze was often faraway. Sometimes he appeared to be in deep thought, then he would draw together his brows and assume a strange, slightly funny dignity. His posture too was odd. He stood broadly, arms held away from the body, as a portly gentleman or a boxer might do. He had few facial expressions and gestures. His dignified seriousness was only rarely interrupted, for instance, when he secretly laughed to himself. It was usually impossible to make out what had struck him as funny at that moment.

His voice fitted this picture well. It was very deep and appeared to come from very far down, in the abdomen. He talked slowly and in a deadpan way without much modulation. He never looked at his interlocutor while talking. His gaze was far away. With a tense, even cramped, facial expression, he tried to formulate his thoughts. In this, he succeeded remarkably well. He had an unusually mature and adult manner of expressing himself, not, as one occasionally sees in children, by using ready-made copied phrases, but drawn from his own quite unchildlike experience. It was as if he coined each word to fit the moment. Often he did not respond to questions but let his talk run single-mindedly along his own tracks. He could describe his own experiences or feelings with an unusual degree

of introspection. He could look at himself as a detached critical observer ('I am dreadfully left-handed'). Although he was aloof from things and people — or perhaps because of this — he had rich experiences and his own independent interests. It was possible to talk to him as to an adult, and one could really learn from him. This phenomenon is well demonstrated by his behaviour during intelligence testing, as described below.

Intelligence testing

First, some general remarks about the testing methods that we use in our department. The main difference from traditional testing (for example, the Binet test, from which we have taken some subtests) is that we use a clinical approach where we are not interested merely in the passing and failing of single tests but, instead, in the qualitative aspects of performance. First we score the performance according to the level reached, and represent this graphically to obtain a test profile. In this way, one can see the discrepancies between the performances in various tests, which would otherwise have been submerged in the overall IQ score. More importantly, we observe how the child solves various problems, his method of working, his individual tempo, his concentration and, above all, his ability to relate and communicate. We adapt the way we test according to the personality of the child, and we try to build up good rapport. Of course, every good tester would do this anyway. Thus, it is important to help the anxious, inhibited child who lacks self-confidence, for example, by starting off the task for him or by helping him along. The chatty and hyperactive child, or the child who does not keep a distance, on the other hand, has to be restrained and somehow made to do the required work.

Obviously, any help given needs to be taken into account later when scoring, which is not easy. We also try to find out what special interests each child may have. We always let the children produce something spontaneously, and we let them expand on their responses by asking more questions. If there is a particular failure or if there are specific problems on some subtest, then we ask questions that are not part of standard procedure until we have clarified the reason for the difficulty.

This method of testing demands much greater experience than schematically laid down methods with rigid scoring. However, if carried out well, it can tell us not only about the intellectual ability of the child, but also about important personality functions.

It was almost as difficult to carry out the testing with Harro as it was with Fritz. Very often, he shut off completely when a question did not interest him.

Sometimes he did not seem to hear the question. A lot of energy went into simply making him do the tasks. Again and again he went off on a tangent and had to be brought back. However, once his attention was engaged, his performance could be remarkably good.

Any tests that did not yield anything of special interest will be omitted, but I will describe in detail the results of the similarities subtest. Here, where Harro was able to produce answers spontaneously, he became lively and interested, and one even had to cut him off, since he threatened to go on for ever.

Tree/Bush "The bush, that is where the branches grow straight off the ground, completely jumbled up, so that it can happen that three or four cross over each other, so that one has a knot in one's hand. The tree, that is where there is first a stem and only then the branches, and not so jumbled up, and rather thick branches. This happened to me once, that is where I cut into a bush, I wanted to make myself a sling, I cut off four branches and then I have an eight-part knot in my hand. This comes when two branches rub against each other, then there is a wound there, then they grow together."

Stairs/Ladders "Stairs are made out of stone. One doesn't call them rungs, they are called steps, because they are much bigger, and on the ladder they are thinner and smaller and round. It is much more comfortable on the stairs than on the ladder."

Stove/Oven "The stove is what one has in the room as a firebringer(!) and the oven is where you cook something."

Lake/River "Well, the lake, it doesn't move from its spot, and it can never be as long and never have that many branches, and it always has an end somewhere. One can't compare at all the Danube with the Ossiach Lake in Corinthia — not in the least little bit."

Glass/Wood "Glass is transparent. Wood, if you wanted to look through it, you would have to make a hole in it. If one wants to beat on a piece of wood then one has to beat a long time until it breaks, unless it's a dry twig. Then that would break easily. With the glass you need to hit only twice and then it's broken."

Fly/Butterfly "The butterfly is colourful, the fly is black. The butterfly has big wings so that two flies could go underneath one wing. But the fly is much more skillful and can walk up the slippery glass and can walk up the wall.

And it has a completely different development! [Now he becomes over-enthusiastic, talks with exaggerated emphasis.] The fly mother lays many, many eggs in a gap in the floorboards and then a few days later the maggots crawl out. I have read this once in a book, where the floor talks — I could die laughing [!] when I think of it — what is looking out of this little tub? A giant head with a tiny body and a trunk like an elephant? And then a few days later they cocoon themselves in and then suddenly there are some dear little flies crawling out. And then the microscope explains how the fly can walk up the wall: just yesterday I saw it has teeny weeny claws on the feet and at the ends tiny little hooks; when it feels that it slips, then it hooks itself up with the hooks. And the butterfly does not grow up in the room as the fly does. I have not read anything about that and I know nothing about it (!), but I believe (!) that the butterfly will take much longer with his development.”

Envy/Meanness ”The mean one has something and doesn’t want to give it away, and the envious one wants to have what the other one has.”

School attainment tests

Since most children who come to us for observation also have learning difficulties, we frequently use scholastic attainment tests. Naturally, we are aware of environmental influences here, for example, neglect of educational needs. Incidentally, when do environmental influences not play a role where test performances are concerned? It is a grave error to think that the responses to Binet tests come entirely from within the child and show no environmental effects!

Reading He read a story shoddily and with errors. However, one could notice clearly that he read for meaning and that the content of the story interested him. He wanted to read faster than he was able to and for this reason was not very accurate. As this observation suggests his reading comprehension was excellent. He could reproduce what he had read in his own words, and he could say what the moral of a story was even though the moral was not explicitly presented in the text (the fable of the fox who was punished for his vanity).

Writing to dictation His handwriting, as to be expected from his general clumsiness, was very poor. He carried on writing carelessly and messily, crossing out words, lines going up and down, the slant changing. His spelling was reasonably accurate. As long as his attention was focused on a word,

he knew how to spell it. It was very significant, then, that he made more spelling errors when copying than at dictation. Really, one would expect that copying should not present any problems at all, since, after all, the word was there in front of him; but this very simple and straightforward task simply did not interest him.

Mathematics Here his ‘autistic originality’ was particularly evident. A few examples:

27 and 12 equals 39. He spontaneously explained how he had worked this out: ”2 times 12 equals 24, 3 times 12 equals 36, I remember the 3 [he means 27 is 3 more than 2 times 12], and carry on.”

58 plus 34 equals 92. “Better: 60 plus 32, 1 always go for the tens.”

34 minus 12 equals 22. ”34 plus 2 equals 36, minus 12 equals 24, minus 2 equals 22, this way I worked it out more quickly than any other.”

47 minus 15 equals 32. ”Either add 3 and also add 3 to that which should be taken away, or first take away 7 and then 8.”

52 minus 25 equals 27. ”2 times 25 equals 50, plus 2 equals 52, 25 plus 2 equals 27.”

A word problem (consider that the boy was only eight-and-a-half years old, and was only in the second year of the primary school!). A bottle with a cork costs 1.10 schillings, the bottle costs just one more schilling than the cork, how much does each cost? After five seconds he gave the correct solution and explained when asked: “When a bottle costs 1 schilling more, then you have to leave one schilling aside, and something of the 10 groschen still needs to be left, so I have to divide by 2, so the cork costs 5 groschen and the bottle costs 1 schilling and 5 groschen.”

Fascinating as his mastery of numbers may be, we can nevertheless see the disadvantages of his original methods. They were often so complicated — however ingenious — that they resulted in errors. To use the conventional methods that are taught at school, for example, starting with tens and then units when subtracting, did not occur to Harro.

Here we come to an important insight: in autism there is a particular difficulty in mechanical learning, indeed there is an inability to learn from adults in conventional ways. Instead, the autistic individual needs to create everything out

of his own thought and experience. More often than not this results in defective performance, even in the more able autistic individuals.

In this way we can explain why such a bright boy as Harro was unable to attain the end of his form year and had to repeat it. Of course, in school he was more difficult than during individual testing, where we made allowances for his problems and provided an opportunity for him to give spontaneous and original answers. On the ward too, we were able to observe how much worse his performance was when he was taught in a group. Being taught in a group, of course means that everybody has to pay attention and do what the teacher asks. Harro could do neither of these.

His mind wandered off on his own problems and he would not know what the lesson was about. He took away from the lesson only those things for which he had a particular affinity and could think about in his own way. According to the school report he hardly ever knew what homework he had to do, and could not therefore do the appropriate work at home despite the father's efforts. It is not surprising, then, that in the previous year he had not been able to advance to the next form despite his undoubtedly ability which was recognised by the school.

Behaviour on the ward and educational treatment

The peculiarities of Harro's behaviour can all be explained in terms of his contact disturbance, that is, his extremely limited relationship to his environment. Through the length of his stay on the ward he remained a stranger. One would never see him join in a game with others. Most of the time, he sat in a corner buried in a book, oblivious to the noise or movement around him. Usually, of course, such fanatical reading is rare before the age of ten. The other children found him odd and he became an object of ridicule because of the way he looked and the 'dignity' that went with it (children are particularly sensitive to this!) Nevertheless, they treated him with a certain shyness and respect, and with good reason. Any teasing by other children was met with brutal and ruthless aggression. He did not see the funny side of things and lacked any sense of humour, especially if the joke was on him.

He could be shamelessly recalcitrant when disciplinary requests were made. He always answered back, for example, "I wouldn't even dream of doing this". Even if he happened to be temporarily impressed by the teacher's authority, he would at least grumble to himself.

Harro did not form any close relationships, either with another child in the ward or with an adult. His interest could be engaged, and then it could be very

stimulating to talk to him. Nevertheless, he never became warm, trusting or cheerful, just as the staff could never quite warm towards him, and he never became free and relaxed.

All his movements eloquently expressed his problem. His facial expressions were sparse and rigid. With this went a general stiffness and clumsiness. Nevertheless, there were no neuropathological symptoms indicating spasticity. The clumsiness was particularly well demonstrated during PE lessons. Even when he was following the group leader's instructions and trying for once to do a particular physical exercise, his movements would be ugly and angular. He was never able to swing with the rhythm of the group. His movements never unfolded naturally and spontaneously — and therefore pleasingly — from the proper co-ordination of the motor system as a whole. Instead, it seemed as if he could only manage to move those muscular parts to which he directed a conscious effort of will. What was true of many of his responses in general was also true here: nothing was spontaneous or natural, everything was 'intellectual'.

Nevertheless, through patience and practice improvement was achieved in a number of practical skills. Like all autistic children, Harro was especially clumsy if not downright obstinate when it came to daily chores such as getting washed. One had to fight hard to teach him the important social habits of everyday life. The many practical skills needed in daily life present little problem to normal children. They can copy and learn them from adults with ease. This is, of course, what teachers expect. The teacher who does not understand that it is necessary to teach autistic children seemingly obvious things will feel impatient and irritated. Autistic children cannot cope with precisely such simple matters. It is impossible to say whether this is because of motor clumsiness or because of a failure to understand. Both seem to go together. Furthermore, they are particularly sensitive about personal demands, and it is far easier to engage their interest intellectually. It is not surprising, therefore, that autistic children show negativism and malice to seemingly petty and routine demands, and that it is there that serious conflicts often arise.

How, then, should one treat these difficulties? We have already noted in the first case that more can be achieved by 'switching off' one's affect and by using an impersonal, objective style of instruction. Here, with the more able and less disturbed Harro, we found a way which we believe to be successful with more autistic children. The boy was more amenable when a request appeared not to be directed towards him in particular, but was verbally phrased in a very general, impersonal way, as an objective law, standing above the child and the teacher, for instance, "One always does such and such . . .", "Now everyone has to . . .", "A

bright boy always does . . .".

Another important point is this: normal children acquire the necessary social habits without being consciously aware of them, they learn instinctively. It is these instinctive relations that are disturbed in autistic children. To put it bluntly, these individuals are intelligent automata. Social adaptation has to proceed via the intellect. In fact, they have to learn everything via the intellect. One has to explain and enumerate everything, where, with normal children, this would be an error of educational judgement. Autistic children have to learn the simple daily chores just like proper homework, systematically. With some children who admittedly were somewhat older than Harro, it was possible to achieve a relatively smooth integration by establishing an exact timetable in which, from the moment of rising at a particular time, every single occupation and duty was outlined in detail. When such children left the hospital they were given a timetable. It was, of course, made up in consultation with the parents and adapted to the individual needs of each family. The children had to give an account of how well they followed the timetable, sometimes by keeping a diary. They felt that they were firmly tied to this 'objective law'. In any case, many of them have pedantic tendencies veering towards the obsessional, and it was possible to use such tendencies for this regulatory purpose.

In this way Harro too achieved better adaptation, though not without difficulty. He certainly began to respond better to the demands of group teaching. Several months after he left, we heard that he was much happier at school. Unfortunately, we have not heard from him since, as his parents, we believe, have moved.

The difficulties these children have with instinctive adaptations are, then, amenable to partial compensation through an intellectualising approach. The better the intellectual ability the more successful this approach. Now, the autistic personality is certainly not only found in the intellectually able. It also occurs in the less able, even in children with severe mental retardation. It is obvious that in the latter case adaptation is much more difficult to achieve. A further case will be given as an example.

Ernst K.

This seven-and-a-half-year-old boy was also referred to us by his school because of severe conduct and learning problems.

The following points from the family history deserve to be mentioned. Birth and physical development were normal. Ernst was an only child. His speech was

somewhat delayed (first words at the age of one-and-a-half). For a long time, the boy was reported to have had speech difficulties (stammering). Now, however, his speech was exceptionally good, he spoke 'like an adult'.

He was reported to have been a very difficult toddler, paying heed to neither his indulgent mother nor his strict father. He was said to be unable to cope with the ordinary demands of everyday life. The mother believed that it was because of his clumsiness and impracticality that he had more difficulties than other children. For instance, it was still necessary to dress him, since, by himself, he would dawdle endlessly and also make a lot of mistakes. He had learnt to eat by himself only recently and was still a messy eater. The mother also reported that occasionally he could be very naughty and would not do what he was told.

He was never able to get on with other children. It was impossible to go to a park with him, as he would instantly get embroiled in fighting. Apparently, he hit or verbally abused other children indiscriminately. This had become more of a problem since he started school. He acted like a red rag to his class and was teased mercilessly. However, rather than keeping away from the other children, he acted as a trouble-maker. For instance, he would pinch or tickle other children or stab them with his pen. He liked to tell fantastic stories, in which he always appeared as the hero. He would tell his mother how he was praised by the teacher in front of the class, and other similar tales.

The report said that it was difficult to know how bright he was. Before he entered school, everyone was convinced that he would learn particularly well, since he was always making clever remarks and original observations. Moreover, he had by himself learnt to count to twenty, as well as picking up the names of various letters. At school, however, he failed miserably. He just managed to move up from the first form (wrongly, as we had cause to observe later), but now, in the second form, according to the teacher, he was not performing adequately. Instead of listening and answering when appropriate, he constantly argued with the teacher as to how to hold his pen. According to the report, he had a strong tendency to argue with everybody and to reprimand them. He was 'very precise': certain things always had to be in the same place, and certain events always had to happen in the same manner, or he would make a big scene. There was an interesting contradiction here: in certain matters he was particularly messy and could not get used to things being done in an orderly fashion, but in others he was pedantic to the point of obsession.

Family history

The father was said to be very highly strung and irritable. By profession he was a tailor's assistant. Although we had known the boy for many years, we had seen the father only once. He was clearly eccentric and a loner. The mother did not like to talk about her domestic circumstances. However, it was plain that her life could not have been very happy due to the husband's difficult character.

The mother was a very bright and extremely nice woman whose life was not easy. She complained of nervousness and headaches. She was also very sensitive. She found it hard to cope with the fact that her son, who was obviously her one and only interest in life, was such an odd child and did so badly at school. She constantly tried to take his side against the school and fought desperately against a transfer into a special school for retarded children.

The rest of the family was said to be without any special peculiarities, the information being given with some reticence.

Appearance and behavior

Ernst was tall (2 cm above average), very thin and delicate. His posture was slack, and his shoulders drooped. The face was handsome with finely chiselled features, marred only by large, sticking-out and somewhat misshapen ears. He was particularly vaso-labile, that is, when embarrassed or excited, there were bright red blotches on his face, sharply outlined, and big sweat drops on the ridge of his nose.

Again, the eye gaze was highly characteristic, far away and unfocused. The eye did not seem to grasp anything and was vaguely aimed into the distance. Mainly for this reason the boy looked as if he had just 'fallen from the sky'. His voice too fitted in with this. It was high, slightly nasal and drawn out, roughly like a caricature of a degenerate aristocrat (for example, the immortal Graf Bobby).

It was not only his voice but his speech too which conveyed the impression bordering on caricature. Ernst talked incessantly, regardless of the questions he was being asked. Everything he did was accompanied by elaborate explanations. He constantly justified why he did something in a particular way. He had to tell others at once whatever it was that captured his attention, whether or not the remark was relevant to the situation. Some of these 'asides' were quite remarkable, not only in the sense that they were very adult in diction, but also because they showed good observation. His practical skills, in sharp contrast, were highly inadequate. Even the simplest demands foiled him. He could recite in minute detail

all the things he was doing when getting up and getting dressed in the morning, but in fact he was always forgetting or confusing things. While he could recite the theory, on a practical level his inadequacy was only too obvious.

In a group, which is meant to follow a common command, he behaved impossibly badly, especially in PE lessons. Ernst always stuck out from the group. This was not only because he was clumsy from a motor point of view but, above all, because he had no notion of discipline or appeal. He was a nuisance when he complained or was hurt, just as much as when he started to talk unconcernedly: "Oh yes, I've got it, I know it already".

To the very end of his stay on the ward he remained a stranger, walking between the other children without ever properly taking part in their games. At most, he would tell off one or other of them, or suddenly start a furious fight, either for no apparent reason or because somebody had teased him. Of course he was the perfect target for teasing, indeed, his whole demeanour was designed to provoke teasing. He was quite a spiteful boy, who pinched and pushed children secretly and spoiled their games. When the smaller children or the teacher were upset about this, he was only spurred on to further mischief.

purred on to further mischief. He made life hard for himself by his awkwardness and endless hesitations. If something was only slightly different from the way that he had imagined it or from what he was used to, he was upset and confused and would go into long tirades. It was very difficult for the teacher to put a stop to this. He also tortured himself with his obsessive pedantries. For example, he had wanted a pullover for Christmas, but because this wish could not be granted, he was given a particularly nice shirt and some toys as well. He was inconsolable over this 'incorrectness'. He never even looked at the other presents, and was unhappy over the whole Christmas period.

Intelligence and attainment testing

Apt as his remarks might have been occasionally, Ernst's whole behaviour spoke of such disturbed adaptation that we did not expect him to perform well on an IQ test. This was indeed the case.

Ernst lacked concentration to a high degree. This was not because he was distractible from outside (passive attention), but because his active attention was disturbed. It was typical that during testing he seemed either to be somewhere else or as if he had just fallen from the sky. He was clearly not tuned in for proper responding and was clueless on most of the test questions. Thus he only managed a very poor performance even when one held him down long enough by look or

by word.

Very characteristic again was the performance on the similarities subtest. Here are some examples:

Fly/Butterfly "The fly has wings like glass. From the wings of the butterfly you can make silk [this apparently referred to the silky shine]. They are colourful. The butterfly, when it gets colder goes down, and in the spring he turns into a caterpillar and then again a butterfly, first he is a cocoon and this is all silvery." Then he talked about some events that had happened to him involving moths in his room and worms in the soup, which had nothing to do with the question

River/Lake "In the river the water flows, and in the lake it stands still, and on the top is green slime."

Wood/Glass "Glass breaks more easily and wood doesn't. Glass is a mass, wood is sappy and damp. It has marrow in the middle. Wood burns to ash, glass stretches apart and then melts."

Stairs/Ladder "The ladder is leaning like this, and the stairs go like that, and up there like this [he draws steps by gesture]. The stairs have a kind of surface for treading on, the ladder has rungs"

Child/Dwarf "The dwarf is small, the child big. The dwarf looks completely different. It has a pointed hat, but this is red. The child has a bonnet."

Again, we found the peculiar signs of 'autistic intelligence'. Performance was best when he gave a spontaneous response, worst when he had to reproduce learnt material or do something in a prescribed manner. His knowledge of the world arose mainly out of his own experience and did not come from learning from others. This is, of course, precisely what makes the achievements of autistic people so often particularly original and delightful. With the less able children, who are much more disturbed, however, the answers are not so much valuable as deviant. The bits of knowledge that they gain accidentally from their own experience often miss the point. This is the same with their language. In the favourable case, we can often obtain especially apt and original verbal expressions. In the unfavourable case, however, the expressions tend towards neologisms and are often more abstruse than delightful.

With Ernst K. the negative aspects outweighed the positive ones, especially if we consider that he was a good half-a-year older than Harro L. His performance

on similarities was by far the best he managed on the test, demonstrating as it did his independent powers of observation and experience. On the other tests, especially the school attainment tests, we could see the reverse side of 'autistic intelligence'. If somebody can only experience in an original way, and if he can only be 'his own self' rather than feel himself to be an integral part of the world — in other words, if he is not engaged in constant interaction — then he *is unable to learn*. He cannot assimilate the ready-made knowledge and skill that others present to him. He is also unable to build up 'automatic programmes' through practice and habit.

All autistic individuals, therefore, have their characteristic difficulties of automatisation. The cleverest among them can overcome their difficulties in the end by dint of sheer intellect. The more disturbed ones fail at school to a far worse extent than one would expect on the basis of their formally tested intelligence. Ernst belongs among these unfavourable cases. In all school subjects his performance was miserably poor. He could do arithmetic only with continuous concrete presentation. He did, however, count on his fingers quite skilfully and quite fast, so that occasionally he was able to simulate a competence that he did not have. His reading was very slow. He often confused letters and had the greatest difficulty in blending letters together. His comprehension of written text was, perhaps, slightly better. His most blatant failure was in writing. Like almost all autistic individuals, this motorically clumsy boy had atrocious handwriting. The pen did not obey him, it stuck and it spluttered; he corrected without concern for appearance and would simply write new letters on top of the old ones; he crossed out, and his letters varied in size. However, this was not the worst aspect of his writing. Even when copying — where he drew letter by letter with painful effort — he would make many spelling mistakes. In dictation, one could hardly recognise what the words were meant to be: letters were omitted, inserted, or put in the wrong order, and some could not be recognised at all.

On the basis of his performance, it was hard to understand how the boy could have advanced after the first school year to a higher form. The reason probably lies in his habit of constantly asking questions and talking about things that occasionally sounded quite clever. Thus, on the surface, his difficulties were disguised.

One could readily imagine that a teacher might have considered the boy to be essentially quite bright from the way he talked and would try to explain away his poor performance. The teacher might have blamed lack of attention and also considered that he did not yet know his pupil well enough after only a year at school, and, of course, he would have hoped for improvement.

It had become clear during testing that the boy's spelling deficiency was caused

mainly by his inability to segment words into letters. He was unable to understand the structure of a word in terms of its individual elements

Therefore we used the whole word method, leaving aside phonics, as an experiment when teaching him. However, when he had to read and write words in this fashion, this too proved extremely slow and tedious. Besides his specific learning difficulties, there were, of course, his general learning difficulties which resulted from his contact disturbance. Nevertheless, it was possible to demonstrate that the boy made some progress. The personal effort put in by the teacher was immense. Of course Ernst had to be taught individually, since it would have been impossible to get him to concentrate on his work in a bigger group. It was clear that the boy could not progress satisfactorily in a normal school, and that transfer to a special school was inevitable. However, since the mother considered such a transfer terribly degrading for her child, we tried the normal primary school again. Now, two years later, he attends the third class of the special school, and he certainly does not count among their best pupils. Indeed, he finds the school much harder than the typical special school pupil, who has difficulties with abstract thinking but can readily acquire the practical skills of everyday life.

It was quite difficult to decide whether Ernst was particularly able or mentally retarded, but there are numerous unequivocally retarded people who show the typical and unmistakable characteristics of autistic psychopathy: the disturbance of contact, with the typical expressive phenomena in terms of glance, voice, mimics, gesture and movement, the disciplinary difficulties, the malice, the pedantries and stereotypies, the automaton-like nature of the whole personality, the lack of ability to learn (to acquire automatic programmes), juxtaposed with relatively superior spontaneous performance. Indeed, in the mentally retarded autistic individual the impairments just mentioned are usually even more striking, since there is no counterweight of otherwise normal functions.

In a reasonably sized out-patient population such cases are not particularly rare, and they are instantly recognisable to the experienced clinician. Anybody who knows such cases will immediately think of the remarkable similarity to personality disorders with an organic cause. These are disorders which are unequivocally caused by brain damage, possibly due to birth injury or to encephalitis in early childhood. Both of these clinical phenomena result in the same disturbances — whether in terms of pathological anatomy or in terms of function.

Characteristic stereotypies in particular are common to both the autistic and the brain-injured retarded child; for example, hopping, fidgeting, whirling, spinning of objects (often with surprising skill) or rhythmic rocking (for instance, of the upper body). In both groups we find a primitive spitefulness which, even with

the severely retarded individual, often has the appearance of real cunning, since these children seem to sense whatever it is that might be the worst thing at any particular moment. In fact, parents often consider this ability to be proof of their child's intelligence. Water supplies in the house are particularly popular targets for mischief (and one can indeed do a lot of it there!), but equally popular is throwing things out of windows, even when these are opened only for an instant. Then there is the instinctive aggression which is characteristic of both clinical groups, shown frequently in pinching, biting and scratching. Brain-injured patients often distinguish themselves by masterful spitting, especially if they have plenty of material due to hyper-salivation! In short, the disturbance of contact which we have already described in autistic children with its characteristic features can be found in a very similar form in many post-encephalitic cases.

It is often not easy to differentiate diagnostically whether, in such cases, the disturbance is constitutional (that is, autistic psychopathy), or a sequel to acquired brain damage. Important factors to consider are family history, birth history, presence of high fever with dizziness, sleepiness, vomiting, fits at any time, and other neurological symptoms. Among these are signs or hints of spastic paresis such as dysarthric speech, stuttering, oculomuscular symptoms, strabismus, vegetative signs such as increased salivation (in our experience, hardly ever absent in the brain-injured), increased eye brilliance (which, together with some other elusive features, forms the basis of the 'encephalitic glance') and profuse sweating. Lastly, there are endocrine disturbances, in particular, obesity. It is increasingly believed that endocrine disturbances are caused by primary cerebral disturbances, in particular, disturbances of the hypophysis. With endocrine disturbances go certain trophic disturbances such as double-jointedness, especially of the fingers, or a particular prominence of the middle of the face. The alveolar appendices can become enlarged and coarse, and the gums become hypertrophic. These signs are particularly striking when they are seen in children who earlier were of an elfin beauty. Three, four or five years after encephalitis, they have a badly misshapen face. As an example, another case will be described briefly.

Hellmuth L.

his boy is the fourth child of his parents, who are themselves without any peculiarities. He was born seven years after the third child, when the mother was forty-one years old. He had severe asphyxia at birth and was resuscitated at length. Soon after his birth he had convulsions, which recurred twice within the next few days,

but have not since. His development was delayed and he started walking and talking towards the end of his second year. However, he then learnt to speak relatively quickly, and even as a toddler he talked 'like a grown up'.

He was always grotesquely fat, despite a strict, medically supervised diet. He gained weight without having a big appetite. When we met him six years ago, at the age of eleven, he had distinctly formed 'breasts and hips'. He has remained thus up to now (we have recently seen him again). He had bilateral cryptorchidism (for about a year he had been masturbating a good deal). The boy had been treated with hormone preparations, especially thymus and hypophysis preparations, since his early childhood but without any effect on his condition. He was double-jointed to a high degree. When one shook his hand, it seemed as if it had no bones and were made of rubber. He had knock knees and flat feet. He had noticeably increased salivation, and when he talked one could hear the saliva bubbling in his mouth.

His appearance was grotesque. On top of the massive body, over the big face with flabby cheeks, was a tiny skull. One could almost consider him microcephalic. His little eyes were closely set together. His glance was lost and absent but occasionally lit up with malice. As is to be expected from his whole appearance, he was clumsy to an extraordinary degree. He stood there in the midst of a group of playing children like a frozen giant. He could not possibly catch a ball, however easy one tried to make it for him. His movements when catching and throwing gave him an extremely comical appearance. The immobile dignity of the face which accompanied this spectacle made the whole even more ridiculous. He was said to have been clumsy in all practical matters from infancy, and has remained so ever since.

Listening to the boy talking, one was surprised how clever he sounded. He kept his immobile dignity while speaking and talked slowly, almost as if in verse, seemingly full of insight and superiority. He often used unusual words, sometimes poetical and sometimes unusual combinations. This was consistent with an interest in poetry as reported by the mother. He clearly did not have any feeling for the fact that he did not really fit into this world. Otherwise he would not have shown off in his peculiar way, especially not in front of other children. It was not surprising, then, that he was continuously taunted by other children who ran after him in the street. Of course, he could never do anything to his fleet-footed tormentors, becoming only more ridiculous in his helpless rage. This was the reason the mother had arranged for him to be taught privately over the last school years. He managed, surprisingly, to attain the fifth grade of primary school.

His school knowledge was very uneven. He was an excellent speller and never

made mistakes. He also had quite a good style. On the other hand, his arithmetic was very poor, not only in terms of the mechanical aspects, but also when problems were presented in verbal form. One noticed the degree of his disability and his ignorance of worldly things when questioning him about ordinary matters of everyday life. This was where he failed abysmally, giving empty, pompous-sounding answers. The mother was quite right when she said that he was always 'in another world'. However, this did not prevent him from doing a lot of malicious things to the people he lived with and to other children. He enjoyed hiding or destroying objects, especially when he was little.

He was reported to have been pedantic from earliest childhood, for instance, he created scenes when something was occasionally placed in a slightly different position from usual. In everything he did, it was said, he had his particular rituals. He was especially concerned with his clothes, did not tolerate a grain of dirt on them, washed his hands very frequently and observed his body and its functions very closely. His pedantries tyrannised the household and he was in general very difficult to cope with.

Much of his description is reminiscent of the earlier cases. This boy was 'an autistic automaton', impractical and instinctually disturbed. His relationships with the outside world were extremely limited. He did not have any genuine human relationships, was full of pedantries and also showed spiteful behaviour.

In Hellmuth's case there were clear indications that his autism was due to brain injury at birth. His medical history — asphyxia, fits, endocrine disorder, hyper-salivation, neurologically based apraxia - clearly pointed to an organic cause.

We can therefore draw the preliminary conclusion that there are cases where an organic disorder can result in a picture that, in numerous critical points, is closely similar to the picture presented by 'autistic personality disorder' of constitutional origin.

The Clinical Picture of Autistic Psychopathy

Instead of describing further cases in detail, let us work out the typical characteristics that autistic children have in common. The information we draw on comes from all our cases, but, as expected with any typological approach, not every case has every feature. Nevertheless, those who know such children never cease to be surprised at the striking coincidences of detail. The autistic personality is highly distinctive despite wide individual differences. Our method would have failed if it ignored the differences and if it let each child's unique personality vanish behind

the type. Autistic individuals are distinguished from each other not only by the degree of contact disturbance and the degree of intellectual ability, but also by their personality and their special interests, which are often outstandingly varied and original.

A crucial point which makes clear that the autistic personality type is a natural entity is its *persistence over time*. From the second year of life we find already the characteristic features which remain unmistakable and constant throughout the whole life-span. Naturally, intelligence and personality develop and, in the course of development, certain features predominate or recede, so that the problems presented change considerably.

Nevertheless, the essential aspects of the problem remain unchanged. In early childhood there are the difficulties in learning simple practical skills and in social adaptation. These difficulties arise out of the same disturbance which at school age cause learning and conduct problems, in adolescence job and performance problems, and in adulthood social and marital conflicts. Thus, apart from its distinctiveness, it is its constancy which makes autism a highly recognisable entity. Once one has properly recognised an autistic individual one can spot such children instantly. They are recognisable from small details, for instance, the way they enter the consulting room at their first visit, their behaviour in the first few moments and the first words they utter.

Physical Appearance and Expressive Characteristics

Autistic children lose their baby features very quickly. Instead of a chubby, soft and undifferentiated baby face, they have highly differentiated, finely boned features. They can be of almost aristocratic appearance, possibly somewhat degenerate. Their early thoughtfulness has formed their faces. The furrowed brow betrays the introspective worrier.

The characteristic peculiarities of eye gaze are never absent. It is not only poets who know that the soul lies in the eyes. From the first moment when an infant can properly 'look', that is, from the third month of life, and well before there is any verbal expression, the majority of his social relations are based on eye gaze. How the small child drinks in the world with his eyes! With his eyes he grasps things and expresses his feelings in a much less inhibited way than the adult, who has learnt to distance himself and to hide his feelings. With our children here, there is a fundamental difference. Hardly ever does their glance fix brightly on a particular object or person as a sign of lively attention and contact. One can never

be sure whether their glance goes into the far distance or is turned inwards, just as one never knows what the children are preoccupied with at a particular moment or what is going on in their minds. The disturbance is particularly clear when they are in conversation with others. Glance does not meet glance as it does when unity of conversational contact is established. When we talk to someone we do not only 'answer' with words, but we 'answer' with our look, our tone of voice and the whole expressive play of face and hands. A large part of social relationships is conducted through eye gaze, but such relationships are of no interest to the autistic child. Therefore, the child does not generally bother to look at the person who is speaking. The gaze goes past the other person or, at most, touches them incidentally in passing. However, autistic children do not look with a firmly fixed glance at anything, but rather, seem to perceive mainly with their peripheral field of vision. Thus, it is occasionally revealed that they have perceived and processed a surprisingly large amount of the world around them. There is one situation, however, in which the eye gaze of these children becomes extremely expressive; their eyes light up when they are intent upon some malicious act, which is then perpetrated in an instant.

It will have become obvious that autistic children have a paucity of facial and gestural expression. In ordinary two-way interaction they are unable to act as a proper counterpart to their opposite number, and hence they have no use for facial expression as a contact-creating device. Sometimes they have a tense, worried look. While talking, however, their face is mostly slack and empty, in line with the lost, faraway glance. There is also a paucity of other expressive movements, that is, gestures. Nevertheless, the children themselves may move constantly, but their movements are mostly stereotypic and have no expressive value.

Next in importance to eye gaze as a channel for expression is language. As we saw with our first case, Fritz V., language expresses interpersonal relationships as much as it provides objective information. Affect, for instance, can be directly expressed in language. We can hear from the tone of voice what relationship people have to each other, for instance superior and subordinate, and whether they are in sympathy or antipathy. This is regardless of the often deceptive content of the words themselves. It is this aspect of language which tells us what someone really thinks. In this way the perceptive listener can get behind the mask. He can tell from an individual's expressions what is lie and truth, what are empty words and what is genuinely meant.

It is impossible to list all that can be revealed in volume, tone and flow of speech since these aspects are as varied as the human character. In any case, we do not intellectually understand many of these qualities and can only feel them

intuitively.

Again, it will come as no surprise that contact-creating expressive functions are deficient in people with disturbed contact. If one listens carefully, one can invariably pick up these kinds of abnormalities in the language of autistic individuals, and their recognition is, therefore, of particular diagnostic importance. The abnormalities differ, of course, from case to case. Sometimes the voice is soft and far away, sometimes it sounds refined and nasal, but sometimes it is too shrill and ear-splitting. In yet other cases, the voice drones on in a sing-song and does not even go down at the end of a sentence. Sometimes speech is over-modulated and sounds like exaggerated verse-speaking. However many possibilities there are, they all have one thing in common: the language feels unnatural, often like a caricature, which provokes ridicule in the naive listener. One other thing: autistic language is not directed to the addressee but is often spoken as if into empty space. This is exactly the same as with autistic eye gaze which, instead of homing in on the gaze of the partner, glides by him.

In a wider sense, the choice of words too must be considered among the expressive functions of language. This will become clear in the following section.

Autistic intelligence

The skills that a child acquires grow out of a tension between two opposite poles: one is spontaneous production, the other imitation of adult knowledge and skills. They have to balance each other if the achievement is to be of value. When original ideas are lacking achievement is an empty shell: what has been learnt is merely a superficial and mechanical copy. Autistic intelligence is characterised by precisely the opposite of this problem. Autistic children *are* able to produce original ideas. Indeed, they can *only* be original, and mechanical learning is hard for them. They are simply not set to assimilate and learn an adult's knowledge. Just as, in general, somebody's good and bad sides are inextricably linked, so the special abilities and disabilities of autistic people are interwoven.

This becomes clearer when we look at the language production of autistic children. They, and especially the intellectually gifted among them, undoubtedly have a special creative attitude towards language. They are able to express their own original experience in a linguistically original form. This is seen in the choice of unusual words which one would suppose to be totally outside the sphere of these children. It is also seen in newly formed or partially restructured expressions which can often be particularly accurate and perspicacious, but also, of course,

often quite abstruse. It is worth mentioning here that all young children have a spontaneous way with words and can produce novel but particularly apt expressions. This is what makes for the charm of child language. Beyond the toddler age, in our experience at least, such spontaneously formed expressions are found only in autistic children. As an example, we can mention a six- to seven-year-old autistic boy who defined the difference between stairs and ladders as "The ladder goes up pointedly and the stairs go up snakedly".

Especially rich in original language productions was an eleven-year-old autistic boy: "I can't do this orally, only headily." (He wanted to say that he had understood something but could not express it verbally.) "My sleep today was long but thin." (This is also an example of autistic introspection.) "To an art-eye, these pictures might be nice, but I don't like them." "I don't like the blinding sun, nor the dark, but best I like the mottled shadow." To the question whether he was religious: "I wouldn't like to say I'm unreligious, but I just don't have any proof of God".

ious, but I just don't have any proof of God.'⁵¹ Behind the originality of language formulations stands the originality of experience. Autistic children have the ability to see things and events around them from a new point of view, which often shows surprising maturity. The problems these children think about are usually far beyond the interests of other children of the same age. A good example for this is our second case, Harro L. Often a very narrow, circumscribed and isolated special area can show hypertrophic development.

We know an autistic child who has a particular interest in the natural sciences. His observations show an unusual eye for the essential. He orders his facts into a system and forms his own theories even if they are occasionally abstruse. Hardly any of this has he heard or read, and he always refers to his own experience. There is also a child who is a 'chemist'. He uses all his money for experiments which often horrify his family and even steals to fund them. Some children have even more specialised interests, for instance, only experiments which create noise and smells. Another autistic boy was obsessed with poisons. He had a most unusual knowledge in this area and possessed a large collection of poisons, some quite naively concocted by himself. He came to us because he had stolen a substantial quantity of cyanide from the locked chemistry store at his school! Another, again, was preoccupied by numbers. Complex calculations were naturally easy for him without being taught. We are reminded here of our first case, Fritz V., which, however, also shows us the possibility of failure. The same child who astounded others by solving complex maths problems had the most serious learning disabilities at school, and could not learn the simple calculation methods that were taught

there. Another autistic child had specialised technological interests and knew an incredible amount about complex machinery. He acquired this knowledge through constant questioning, which it was impossible to fend off, and also to a great degree through his own observations. He came to be preoccupied with fantastic inventions, such as spaceships and the like, and here one observes how remote from reality autistic interests often are.

Another distinctive trait one finds in some autistic children is a rare maturity of taste in art. Normal children have no time for more sophisticated art. Their taste is usually for the pretty picture, with kitschy rose pink and sky blue. The artfully stylised children's books, so fashionable fifteen to twenty years ago, are therefore as unchildlike as possible. Fortunately, matters have now improved in this respect. Autistic children, on the other hand, can have a surprisingly sophisticated understanding, being able to distinguish between art and kitsch with great confidence. They may have a special understanding of works of art which are difficult even for many adults, for instance Romanesque sculpture or paintings by Rembrandt. Autistic individuals can judge accurately the events represented in the picture, as well as what lies behind them, including the character of the people represented and the mood that pervades a painting. Consider that many normal adults never reach this mature degree of art appreciation.

Related to this skill is the autistic person's ability to engage in a particular kind of introspection and to be a judge of character. While the normal child lives unself-consciously and appropriately interacts with others as an integrated member of his community, these children observe themselves constantly. They are an object of interest to themselves, and they direct their attention towards the functions of their body. Here is an example: a nine-year-old autistic boy suffered badly from homesickness in the evening (homesickness always being worst at this time), saying: "If one lays one's head on the bolster, then there is such a strange noise in the ear and one has to lie very quietly for a long time and that is nice." The same boy also described an occasional micropsy: "At school, I sometimes see that teacher has a tiny head, then I don't know what it is; it is very unpleasant to me that I see this way. Then I press my eyes very hard [demonstrates how he does this], and then it gets better."

These peculiarities lead us to a digression. As always, the miraculous automaticity of vegetative life is at its best when left unconscious. When attention is directed towards it we invariably find disturbances of these functions. Hamburger has always emphasised that educators should never direct the child's attention towards eating, sleeping or elimination, since this would only disturb these automatic functions. With autistic children, however, their own bodily functions are

in the forefront of their consciousness anyway. The functions are not only registered and taken seriously, but they are also often disturbed. Especially frequent are eating and sleeping difficulties, which can lead to serious conflicts within the family.

Just as these children observe themselves to a high degree, so they also often have surprisingly accurate and mature observations about people in their environment. They know who means well with them and who does not, even when he feigns differently. They have a particular sensitivity for the abnormalities of other children. Indeed, abnormal as they themselves may be, they are almost over-sensitive in this respect.

Here we have to solve an apparent contradiction, which will, however, lead us directly on to a very important point. We want to demonstrate that the essential abnormality in autism is a disturbance of the lively relationship with the whole environment. We claim that this disturbance explains all peculiarities shown by autistic individuals. Now, how can one reconcile this contact disturbance with the special clear-sightedness which is implicit in the examples just described? How can somebody with disturbed relationships experience so much so consciously? The contradiction is only apparent. The normal child, especially the young one, who stands in a proper relation to the environment, instinctively swims with the tide. Conscious judgement does not come into this and in fact can occur only when one has some distance from the world of concrete objects. Distance from the object is the prerequisite of abstraction of consciousness, and of concept formation. Increased personal distance which characterises autistic individuals and which is also at the heart of their disturbed instinctive affective reactions, is, in a sense, responsible for their good intellectual grasp of the world. This is why we can speak of 'psychopathic clarity of vision' in these children, since it is seen only in them. This ability, which remains throughout life, can in favourable cases lead to exceptional achievements which others may never attain. Abstraction ability, for instance, is a prerequisite for scientific endeavour. Indeed, we find numerous autistic individuals among distinguished scientists. The contact disturbance which gives rise to a helplessness in the matters of practical life is typical of the absent-minded professor, and has made him immortal in jokes and cartoons.

Unfortunately, in the majority of cases the positive aspects of autism do not outweigh the negative ones. We have mentioned repeatedly that autism occurs at different levels of ability. The range encompasses all levels of ability from the highly original genius, through the weird eccentric who lives in a world of his own and achieves very little, down to the most severe contact-disturbed, automaton-like mentally retarded individual. Our third case, Ernst K., may give an idea of

people in the middle group. A further example for this group is an eight-to-nine-year-old boy who, when asked "What is the difference between wood and glass?", replied "The wood grows and gets a dirty skin, it attracts the dirt from the soil, and it gets so hard that it sticks to the tree and does not go away any more. This is how the soil fixes itself to the tree. If one drops glass, then it breaks even though it has been welded together, because the stickiness which is welded in lets go, and then it breaks." Clearly this abstruse theory is weird rather than original!

From this middle group there is a smooth transition further along the range to those mentally retarded people who show highly stereotyped automaton-like behaviour. Sometimes they have crackpot interests which are of no practical use. They also include 'calendar people', who know the name of the saint for every day of the year, or children who, long before they enter a special school, know all the tram lines of Vienna with their terminals, or children who show other feats of rote memory.

So far, we have looked at the intelligence of autistic children from the point of view of their own spontaneous productions and their own interests. Now we shall turn to learning and schooling. Obeying only spontaneous impulses and never paying attention to social demands may well lead to originality but will also lead to learning failure. The truth of this statement is borne out in almost all our cases. The very same children who can astonish their teachers with their advanced and clever answers fail miserably at their lessons. What they find difficult are the mechanical aspects of learning which the least clever, even somewhat retarded, pupils find easy, in other words, reading, writing and arithmetic (multiplication tables!). Sometimes, school subjects happen to coincide with the child's special interest. For instance, some of these children may learn to read particularly easily because they absorb all reading material from an unusually early age, say six or seven years (normally, children become bookworms around the age of ten). 'Savant' calculators can certainly do well at school arithmetic, although there are some noticeable paradoxes here. The obsession to go his own way in all circumstances and the exclusive use of his own self-invented procedures can prevent the child from assimilating the calculation methods the school wishes to instil. These children make life difficult for themselves. They are bound to make errors and to arrive at the wrong results. Examples are described in the first case (Fritz V.) and the second (Harro L.). Another example is of an autistic boy who was just starting school, but could pose and solve the problem of how many seconds there are in two hours. However, when asked to work out 5 plus 6, he said, "I don't like little sums, I'd much rather do a thousand times a thousand." After he had produced his 'spontaneous' calculations for a while, we insisted that he solve the

given problem. He then presented the following original, but awkward method: "Look, that's how I work it out. 6 and 6 equals 12 and 5 and 6 is 1 less, therefore 11." This boy was also particularly prone to being distracted, that is, distracted from within. This type of distraction impairs the performance of many autistic children.

We regularly find a disturbance of active attention in autistic children. Here we are not, or not only, talking about the common-or-garden problems of concentration. These are problems that we find in many neurologically disordered children who are constantly distracted from work by external stimuli, especially restlessness or movement. Autistic children on the other hand are, from the start, not interested in directing their attention to outside stimuli, in this case, what the school wants them to attend to. They follow their own ideas, which are mostly far removed from ordinary concerns, and do not like to be distracted from their thoughts. Nevertheless, autistic children can often be quite easily influenced from outside, in this as well as in other matters.

It is little wonder, then, that most autistic children have severe learning difficulties. With the cleverest children, teachers may overlook the problems in mechanical learning. Usually, however, teachers despair at the tortuous efforts required of them and of the children themselves. In many cases, there are also characteristic conflicts between teacher and parents. Parents are generally inclined to judge their children favourably, and if the child shows original and inventive ideas then they will often believe him to be particularly intelligent. Teachers tend rather to see the failure in the taught school subjects and give bad marks. This easily leads to conflict where both parties are to some extent right.

At this juncture, another point concerning the practice of intelligence testing needs to be made. Most intelligence tests, especially those devised by Binet and subsequent modifications, deliberately avoid testing school knowledge because this is thought to depend largely on exogenous factors. Instead, the tests exclude tasks where learning and environment play a role. Strictly speaking, this is, of course, impossible. Now, the Binet test, especially at older age levels, involves above all logical, abstract thinking. Since this is what autistic children often find congenial, they may achieve a high score, which would give a false picture of their intelligence. The difficulties of these children will, however, be revealed in tests involving learning. Here one can readily witness the particular kind of learning failure that has just been described. We therefore use learning tests to tell us not only about the scholastic knowledge of these children, but also about their methods, attention, concentration, distractibility and persistence. Clearly there are influences of exogenous factors, for instance the possibility of teaching neglect,

and one has to be aware of them. Of course, this is also true for IQ tests if their results are to be of real value. To mention just one example: the verbal fluency of socially advantaged children can often produce deceptively high test results.

Behaviour in the Social Group

It has been my aim to show that the fundamental disorder of autistic individuals is the limitation of their social relationships. The whole personality of these children is determined by this limitation. So far, we have looked at the children by themselves and seen how the disorder affects expressive functions and intellectual performance. However, the nature of these children is revealed most clearly in their behaviour towards other people.

Indeed, their behaviour in the social group is the clearest sign of their disorder and the source of conflicts from earliest childhood. These conflicts are especially pronounced in the smallest social unit, that is, the family. The fact that schizophrenics too suffer their worst conflicts within the family provides a parallel example. The reason is simple: the family unit is based on the emotional bonds of the members to each other. The children in the family are influenced strongly by these feelings, by the interplay of feeling between parents and children. Neither the schizophrenic, with limited affect, nor the autistic individual knows what to do with these particular feelings. They face them with incomprehension and even rejection. Thus parents suffer deeply from the unfeeling behaviour of their children.

It is thus mainly within the family that 'autistic acts of malice' occur. These acts typically appear to be calculated. With uncanny certainty, the children manage to do whatever is the most unpleasant or hurtful in a particular situation. However, since their emotionality is poorly developed, they cannot sense how much they hurt others, either physically, as in the case of younger siblings, or mentally, as in the case of parents. There can sometimes be distinctly sadistic acts. Delight in malice, which is rarely absent, provides almost the only occasion when the lost glance of these children appears to light up.

Similarly, there are negativistic reactions, as we saw in the case of Fritz V. These can often be caused by failure and frustration in the practical matters of life. We have already discussed the gaucheness of autistic children and their need to learn by way of intellectual effort. They can learn only with the help of elaborate rules and laws and are unable to pick up all those things that other children acquire naturally in unconscious imitation of adults. Parents find the learning problems

particularly hard to understand. They expect compliance in the daily routines of washing, dressing and eating. Therefore it is precisely these situations which give rise to scenes and to the negativistic and malicious reactions.

Having just considered aggressive reactions within the social unit of the family, we have to take into account the isolation of the autistic child within the family. This isolation occurs when there are siblings, but it applies equally to only children, which autistic children usually are. 'It is as if he were alone in the world' is a common enough description. 'He dwells among people as if a stranger', 'he seems to take no notice of what happens around him'. Of course, one is sometimes surprised at how much is absorbed of what goes on despite the apparent lack of interest. The child sits preoccupied, perhaps apart in a corner, or even in the middle of a happy, noisy group of siblings or peers. He is like an alien, oblivious to the surrounding noise and movement, and inaccessible in his preoccupation. He is irritated only if someone breaks into his isolation.

irritated only if someone breaks into his isolation. The young autistic child is often engaged in stereotypic activity. Sometimes we find the simplest movement stereotypies, such as rhythmic rocking. Sometimes there is monotonous play with a shoelace which goes on for hours or with a particular toy, for instance, a whip or an old doll, which is treated almost like a fetish. The children often enjoy rhythmical beating and hitting, and forming patterned rows with their toys, for instance, they sort toy bricks according to colour, form or size, or according to some other unfathomable rule rather than building with them. It is usually impossible to tear them away from their play or their preoccupations. A seven-year-old autistic boy showed severe eating problems because he never stopped looking at the little specks of fat that were swimming on the surface of his soup. They interested him excessively, to look at, to move to and fro or to blow at. Seemingly, the changing forms were alive and meaningful to him.

In everything these children follow their own impulses and interests regardless of the outside world. In the family one can largely adjust to these peculiarities in order to avoid conflict, and simply let these children go their own way. Only when it comes to the daily chores of getting up, getting dressed, washing and eating do we get characteristic clashes. In school, however, the freedom to indulge in spontaneous impulses and interests is heavily curtailed. Now the child is expected to sit still, pay attention and answer questions. Autistic children can do none of these things, or do them only with great difficulty. Causes for open conflict are now multiplied. While parents can often cope with the oddities of small autistic children on their own, at school they are almost always referred to child guidance centres because they cannot be handled in the ordinary way.

In the first two cases we pointed out the learning and conduct problems in school that are due to autism. It was also mentioned that autistic children are often tormented and rejected by their classmates simply because they are different and stand out from the crowd. Their conduct, manner of speech and, not least, often grotesque demeanour cries out to be ridiculed. Children in general have a good eye for this and show great accuracy in their mocking of conspicuous character peculiarities.

Thus, in the playground or on the way to school one can often see an autistic child at the centre of a jeering horde of little urchins. The child himself may be hitting out in blind fury or crying helplessly. In either case he is defenceless. The situation can be so bad that the mother must accompany the child to protect him from this sort of cruelty. The child may need a minder to the end of his school years and often beyond.⁶⁷ In favourable cases, however, it is possible for autistic children to earn respect, even if it is mixed with ridicule, either through sheer intellectual prowess or through particularly ruthless aggression.

Drive and Affect in the Autist

It will be clear by now that the personality of the children presented here lacks, above all, harmony between affect and intellect. While intellect may often be above average, drives and instincts are often severely disturbed. This is shown in the failure of instinctive situational adaptation and when faced with the practical demands of ordinary life. It is also shown in the expressive aspects of behaviour. We will now go on to look at these disturbances of drive and feeling one by one.

We start with sexuality. The picture is by no means uniform. Some individuals, throughout their childhood, and also beyond puberty, are sexually uninterested. They have a weak drive and never achieve healthy sexuality even in later life. However, in the majority of cases, there are early signs of strong sexual activity. In many cases, this is shown in masturbation which appears early, is practised intensively and obstinately, and is not amenable to change. Since any feelings of shame or guilt are largely absent, the children may masturbate in public, exhibitionistically, and they cannot be made to desist. One also hears of homosexual acts in relatively young children, as in case 2.

Sadistic traits are frequently reported. As an example, we mention some remarks of a seven-year-old boy with strongly autistic features: "Mummy, I shall take a knife one day and push it in your heart, then blood will spurt out and this will cause a great stir." "It would be nice if I were a wolf. Then I could rip apart

sheep and people, and then blood would flow." Once, when the mother cut her finger, "Why isn't there more blood? The blood should run!" When he injured himself on one occasion, he was said to have been utterly thrilled, so that the doctor who tended the wound remarked on the child's state as extremely odd. At the same time, the boy was particularly anxious. He was afraid to fall over in his chair and extremely afraid of fast-moving vehicles on the road. There is also not infrequently a tendency to use obscene words which may stand in strange contrast to the otherwise often stilted language of these children.

Thus, with the sexual aspect of affective life there is often a definite disharmony, either a weakness or precocity and perversion, but no harmonious integration of sexuality into the developing personality. The same is also true for other areas of affective life. Over-sensitivity and blatant insensitivity clash with each other. Here are some examples.

In the sense of taste we find almost invariably very pronounced likes and dislikes. The frequency of this phenomenon provides yet more proof of the unity of the type. There is often a preference for very sour or strongly spiced food, such as gherkins or roast meat. Often there is an insurmountable dislike of vegetables or dairy produce. It is no different with the sense of touch. Many children have an abnormally strong dislike of particular tactile sensations, for example, velvet, silk, cotton wool or chalk. They cannot tolerate the roughness of new shirts, or of mended socks. Cutting fingernails is often the cause of tantrums. Washing water too can often be a source of unpleasant sensations and, hence, of unpleasant scenes. In the hospital we have observed hypersensitivity of the throat which was so strong that the daily routine inspection with the spatula became an increasingly difficult procedure. There is hypersensitivity too against noise. Yet the same children who are often distinctly hypersensitive to noise in particular situations, in other situations may appear to be hyposensitive. They may appear to be switched off even to loud noises.

The impression of disharmony and contradiction only increases when we consider the higher feelings as they are manifested in relationships to objects, to animals and to other people. As soon as one starts to work with these children, one is struck by a distinctive emotional defect which one may well consider an ultimate cause of their social disturbance. This defect is apparent in their isolation while they are in the midst of other people and in their contrariness with their environment and especially their closest family.

They lack the displays of affection which normally make life with a small child so richly rewarding. One never hears that they try to flatter or try to be nice. Indeed, they often turn nasty when one tries to be nice to them. Their malice and

cruelty too clearly arise from this impoverished emotionality.

Autistic children are egocentric in the extreme. They follow only their own wishes, interests and spontaneous impulses, without considering restrictions or prescriptions imposed from outside. They lack completely any respect for the other person. They treat everyone as an equal as a matter of course and speak with a natural self-confidence. In their disobedience too their lack of respect is apparent. They do not show deliberate acts of cheek, but have a genuine defect in their understanding of the other person.

For personal distance too they have no sense or feeling. Just as they unconcernedly lean on others, even complete strangers, and may run their fingers over them as if they were a piece of furniture, so they impose themselves without shyness on anybody. They may demand a service or simply start a conversation on a theme of their own choosing. All this goes, of course, without any regard for differences in age, social rank or common courtesies.

Autistic children's relations to objects, too, are abnormal. With the normal child, particularly the infant, things become alive because he fills them with life through his vivid relationship with the world around him. He gains experience and maturity through lavishing his attention and love on objects. This does not happen with autistic children. Either they take no notice of the objects in their environment, for instance, they take little interest in toys, or they have abnormal fixations. Perhaps they fixate on a whip or a wooden brick or a doll that they never let out of their sight, and cannot eat or sleep when the 'fetish' is not there. There can be the most severe tantrums at any attempt to take away the object of such passionate attachment.

Very often, the relationship of autistic children to things is limited to *collecting*, and here again, instead of the harmonious order and richness of a normally balanced affective life, we find deficiencies and empty spaces, in which singular areas develop to an excessive extent. The collections that are favoured by autistic children appear like soulless possessions. The children accumulate things merely in order to possess them, not to make something of them, to play with them or to modify them. Thus, a six-year-old-boy had the ambition to collect 1,000 match-boxes, a goal which he pursued with fanatical energy. The mother, however, never saw him play trains with them as other children do. Another boy collected cotton threads; a third 'everything' that he found on the street, but not like the street urchin, who has everything in his trouser pocket that he might need for his pranks. The autistic individual just stacks boxes full of useless junk. He constantly orders things and watches over them like a miser. Thus, there are serious rows when the mother dares to throw anything away. In adulthood the passion for collec-

tions often becomes more interesting and selective, in short more 'rational', and their mental attitude to collecting improves. The real collector-type is often an eccentric with pronounced autistic traits.

Autistic children also do not have a proper attitude towards their own bodies. It is often well nigh impossible to teach them the numerous requirements of cleanliness and physical care. Even as adults they may be seen to walk about unkempt and unwashed, including those who have taken up an academic career. Up to the end of their childhood autistic children tend to be extremely messy eaters. They may smear or 'paint' with their food while being preoccupied with some strange problem of their own.

Another characteristic of autistic children is the *absence of a sense of humour*. They do not 'understand jokes', especially if the joke is on them. This is another reason for their often being the butt of teasing: if one can laugh at oneself, one can take the edge off ridicule. However, autistic children are rarely relaxed and carefree and never achieve that particular wisdom and deep intuitive human understanding that underlie genuine humour. When they are in a merry mood, as sometimes happens, then this often strikes one as unpleasant. The mood is exaggerated and immoderate. They jump and rampage around the room, infringe other people's space, are aggressive and annoying. When making puns, however, autistic people sometimes shine, and may even be highly creative. This can range from simple word-play and sound associations to precisely formulated, truly witty remarks.

Nevertheless, if one focused only on the features just described, one would gain a false impression of the emotional side of autistic individuals. There are also observations that do not show such a decidedly negative picture.

Again and again, we have been surprised by the severe bouts of homesickness of autistic children when newly admitted to the ward. At first, this phenomenon did not seem to us to fit at all with the otherwise blatant signs of emotional poverty. Ordinary children, even those who have a very strong and genuine emotional bond to their family, adapt to their new environment after a short period of grief. This is because they can soon feel the love and care offered to them, and because they increasingly become interested in the new environment and the various activities that fill their days. Autistic children suffer from homesickness much more severely. For days they may cry desperately, especially in the evenings, when the pain always breaks out anew. They talk about their poor tormented parents and about their home with the tenderest words — with the mature language that we have already mentioned — and also with an exceptionally differentiated emotion, which children of that age cannot usually express. In a peculiar mixture of naivety

and sophistication they give reason upon reason why they cannot stay, why they definitely have to go home today. They write imploring and quite shattering letters home. This all lasts very much longer than the homesickness of normal children, until at last they too get used to us and start to feel happy under the inescapable structure and guidance that we impose. It is possible that an exceptional degree of bonding to the objects and habits of the home, bordering on the obsessional, causes these children to suffer so much at separation. Therefore, it may be their general limitation in the normal freedom of action which lies at the root of this reaction. Nevertheless, the phenomenon of severe homesickness shows that autistic children are capable of strong feelings.

There are other examples. One boy, whose highly creative verbal expressions have already been quoted, had two white mice for which he cared tenderly, and which he preferred to all human beings, as he frequently pointed out. This boy deeply upset his parents by his spitefulness and cruelly tormented his little brother. There are similar examples of undoubted emotional attachments to animals and also to particular people which can regularly be observed in autistic children.

In view of these facts, the problem of the emotionality of autistic children is made extremely complicated for us. In any case, the children cannot be understood simply in terms of the concept 'poverty of emotion', used in a quantitative sense. Rather, what characterises these children is a qualitative difference, a disharmony in emotion and disposition. They are full of surprising contradictions which makes social adaptation extremely hard to achieve.

Genetic and Biological Factors

Given that the autistic personality type is both circumscribed and persistent, the questions of heredity must arise. The idea that psychopathic states are constitutional and, hence, inheritable has long been confirmed. However, it is a vain hope to think there may be a clear and simple mode of inheritance. These states are undoubtedly polygenetic, but it is as yet impossible to know whether such a trait is dominant or recessive.

The task of tracing the pedigrees of our children will have to remain for a later investigation. We want only to state briefly that over the course of ten years we have observed more than 200 children who all showed autism to a greater or lesser degree. We have been able to discern related incipient traits in parents or relatives, in *every* single case where it was possible for us to make a closer acquaintance. Usually certain autistic peculiarities were present, but often we also

found the fully fledged autistic picture starting with abnormalities of expressive functions and gaucheness up to the higher level of 'integration difficulties'. If it is the father who has transmitted the autistic traits, then he will in most cases have an intellectual profession. If one happens to find a manual worker among them, then it is probably someone who has missed his vocation (see case 2). In many cases the ancestors of these children have been intellectuals for several generations and have been driven into the professions by their nature. Occasionally, we found among these children descendants of important artistic and scholarly families. Sometimes it seems as if of the former grandeur only the eccentricity remains — which often also characterises great scientists. Many of the fathers of our autistic children occupy high positions, despite their noticeable peculiarities. This testifies to the social value of this personality type.

The familial findings we have sketched here certainly suggest a dominant mode of inheritance. They also suggest specificity since there is astonishing similarity between autistic individuals.

It is fascinating to note that the autistic children we have seen are almost exclusively *boys*. Sometimes girls had contact disturbances which were reminiscent of autism, and there were also girls in whom a preceding encephalitis had caused the state (as in case 4, Hellmuth L.). However, we never found the fully formed picture as shown in cases 1 to 3. How can this be explained? There is certainly a strong hint at a sex-linked or at least sex-limited mode of inheritance.

The autistic personality is an extreme variant of male intelligence. Even within the normal variation, we find typical sex differences in intelligence. In general, girls are the better learners. They are more gifted for the concrete and the practical, and for tidy, methodical work. Boys, on the other hand, tend to have a gift for logical ability, abstraction, precise thinking and formulating, and for independent scientific investigation. This is the reason, too, why in general boys at older age levels do better than girls in the Binet test. The narrowly logical and abstract items which start at the ten-year level are simply more congenial to boys! In the autistic individual the male pattern is exaggerated to the extreme. In general, abstraction is congenial to male thought processes, while female thought processes draw more strongly on feelings and instincts. In the autistic person abstraction is so highly developed that the relationship to the concrete, to objects and to people has largely been lost, and as a result the instinctual aspects of adaptation are heavily reduced.

While we have never met a girl with the fully fledged picture of autism, we have, however, seen several mothers of autistic children whose behaviour had decidedly autistic features. It is difficult to explain this observation. It may be only chance that there are no autistic girls among our cases, or it could be that

autistic traits in the female become evident only after puberty. We just do not know.

When surveying our case material, we found that more often than not autistic children were *only children*. This is noticeable even after allowing for urban population trends. Precise numbers have to await further investigation. An observer coming from a background of 'individual psychology' ('Individual-psychologie') would naturally explain the whole clinical picture out of the situation of the only child, and see in this proof for an exogenous cause of autism. He would explain the disturbed social relations, as well as the precocious speaking and thinking, simply from the fact that only children grow up among adults and never learn to adjust to siblings. Parents and teachers too often tend to explain the typical difficulties by referring to the notion of the only child. However, here as so often, this particular psychological approach confuses cause and effect. If one sees how autistic children grow up autistic from babyhood, and if one sees that those who grow up among siblings develop in exactly the same way as those who are only children, then an explanation in terms of exogenous causes must seem absurd. Autism does not arise because there are unfavourable developmental influences for a siblingless child, but because there is an inherited disposition. It may be an expression of autism in the parents that they have brought into the world only one child. Undoubtedly, there are many reasons for the wish to have children, and this is subject to change by outside forces. An excellent example of such change can be seen most recently in Germany. The variations of the human character suggest, however, that the wish for children, or its converse, has a deep biological basis. A lack of or reduction of this wish is a characteristic trait in most autistic personalities and can be considered another symptom of their hyposexual, instinctually disturbed nature. Many autistic people lead solitary lives and do not marry and have children. Many of those who do marry show tensions and problems in their marriage. In such a marriage the proper harmony between mind and body cannot be found and there is little space for raising large numbers of children. One is reminded here of Ludwig Klages who said "the intellect is the enemy of life". We need to emphasise, then, that being an only child is a symptom rather than a cause of the autistic condition.

In our description of the cases, especially the first, we saw that there were a number of similarities between autistic psychopathy and schizophrenic states. Indeed, the question arises whether a child as deviant as Fritz V. suffers from childhood schizophrenia. We considered this question and rejected the diagnosis of a schizophrenic psychosis in this case. The same applies to the others, who were less deviant in any case.

We now need to turn to another question. Could it be that at least some of the cases described are precursors of schizophrenia? The answer is again no. Our cases here do not show the progressive deterioration that would be expected for psychosis. In essence, they remain the same throughout their life, though there is often improved adaptation, and many can achieve a reasonable degree of social integration. I know of only one case, first considered to be severely autistic, in which, two years later, a progressive destruction of the personality occurred, and hebephrenia was diagnosed. In all other cases, some of which I have observed for twenty years or longer, I have not seen a transition of autistic personality disorder into genuine schizophrenia.

Concerned with this, we now need to ask whether autistic psychopathy derives, perhaps partially, from a genetic disposition to schizophrenia. If we presuppose polygenic inheritance for schizophrenia, are autistic individuals carriers of single genes which, in combination, would cause schizophrenia, or is autism a sign of disposition towards schizophrenia which has failed to manifest itself? These questions can be clarified only by means of exact family studies. It would be necessary to find an excess of schizophrenics in the blood relations of autistic children. We can give no conclusive answers at present but have to refer again to future studies. Meanwhile, it should be pointed out that we do not believe that there is an excess of schizophrenics in the families of autistic children, and thus the autistic personality is neither biologically nor genetically related to schizophrenia. This would be consistent with Schroder's view of personality disorder or psychopathy; he maintained that psychopaths are *not* mad, nor half nor quarter mad.

The Social Value of the Autistic Psychopath

The aim of this paper was to report on a personality disorder already manifest in childhood which to my knowledge has not yet been described. In the following section we try to go beyond this aim and consider what will become of autistic children. At the same time, we shall consider their potential value to society. This question is important enough to be discussed in spite of the limitations of this paper, which can deal only with autism in childhood.

One might expect from much that has been said so far that social integration of autistic people is extremely difficult if not impossible. After all, we have pointed out that the essential feature of the condition is a disturbance of adaptation to the social environment. This bleak expectation, however, is borne out only in a minority of cases and, in particular, almost exclusively in those people with

considerable intellectual retardation in addition to autism.

The fate of the latter cases is often very sad. At best they may get into a low-level odd job, often only on a temporary basis. In the less favourable cases, they roam the streets as 'originals', grotesque and dilapidated, talking loudly to themselves or unconcernedly to passers-by as autistic individuals would. They are taunted by urchins and react to this with wild but ineffectual outbursts.

This is not so with intellectually intact autistic individuals, and in particular those of above-average intelligence. Of course, in adulthood too their relationships to others are as disturbed as they are in childhood when they produce the same characteristic conflicts. An old definition of psychopathy is that psychopaths are people who suffer from themselves, and from whom the environment suffers in turn. The latter part of the saying certainly applies to autistic individuals but it is hard to know whether they suffer from themselves. They *are* strangely impenetrable and difficult to fathom. Their emotional life remains a closed book. Given their behaviour problems in childhood, it is to be expected that their closest relatives or spouses find them difficult to get on with. However, it is a different matter where their work is concerned.

In the vast majority of cases work performance can be excellent, and with this comes social integration. Able autistic individuals can rise to eminent positions and perform with such outstanding success that one may even conclude that only such people are capable of certain achievements. It is as if they had compensatory abilities to counter-balance their deficiencies. Their unswerving determination and penetrating intellectual powers, part of their spontaneous and original mental activity, their narrowness and singlemindedness, as manifested in their special interests, can be immensely valuable and can lead to outstanding achievements in their chosen areas. We can see in the autistic person, far more clearly than with any normal child, a predestination for a particular profession from earliest youth. A particular line of work often grows naturally out of their special abilities.

Here is an example. For almost three decades we were able to observe an autistic individual from boyhood to manhood. Throughout his life he showed grossly autistic behaviour. It was as if he never took any notice of other people. He behaved so absent-mindedly that he often did not recognise his closest acquaintances. He was extremely clumsy and gauche, and there were all the difficulties we described earlier in learning to deal with the practical chores of daily life. He remained awkward and socially unconcerned in his demeanour. For instance, one could see him as a young man sitting in the tram and picking his nose with great care and persistence! When he was at school there were constant serious difficulties; he learnt or did not learn as the whim took him. For languages he had no

talent at all. In secondary school he never advanced beyond the elementary grade of Greek and was able to get by only on the basis of his other abilities.

Even as a toddler, one could see in him a most unusual and spontaneous mathematical talent. Through persistent questioning of adults he acquired all the necessary knowledge from which he then worked independently. The following scene is reported from his third (!) year of life. The mother had to draw for him, in the sand, a triangle [Dreieck or three-corner], a square [four-corner] and a pentangle [five-corner]. He then took a stick himself, drew a line and said "And this is a two-corner [Zwei-eck], isn't it?", then made a dot and said "And this one is a one-corner [Ein-eck]". All his play and all his interest centred on mathematics. Before he even started school he was able to work out cubic roots. It must be emphasised that the parents had never drilled the child in calculating skills, but that the boy quite spontaneously, sometimes against the wishes of his teachers, forced them to teach him these skills. In secondary school he surprised his teachers by his specialised mathematical knowledge which had already advanced to the most abstract areas. Thanks to this extraordinary talent, and despite his impossible behaviour and failure in other subjects, he managed to advance without having to repeat classes, and was able to take the university entrance examinations. Not long after the start of his university studies, reading theoretical astronomy, he proved a mathematical error in Newton's work. His tutor advised him to use this discovery as the basis for his doctoral dissertation. From the outset it was clear that he was destined for an academic career. In an exceptionally short time he became an assistant professor at the Department of Astronomy and achieved his Habilitation.

This case history is by no means exceptional. To our own amazement, we have seen that autistic individuals, as long as they are intellectually intact, can almost always achieve professional success, usually in highly specialised academic professions, often in very high positions, with a preference for abstract content. We found a large number of people whose mathematical ability determines their professions: mathematicians, technologists, industrial chemists and high-ranking civil servants. We also found some unusual specialisations. For instance, there is a heraldry expert who is said to be an authority in his field. There are also several musicians of considerable stature who were observed by us when children. The superficially surprising fact that such difficult and abnormal children can achieve a tolerable, or even excellent, degree of social integration can be explained if one considers it a little further.

A good professional attitude involves single-mindedness as well as the decision to give up a large number of other interests. Many people find this a very unpleasant decision. Quite a number of young people choose the wrong job be-

cause, being equally talented in different areas, they cannot muster the dedication necessary to focus on a single career. With the autistic individual, on the other hand, the matter is entirely different. With collected energy and obvious confidence and, yes, with a blinkered attitude towards life's rich rewards, they go their own way, the way to which their talents have directed them from childhood. Thus, the truth of the old adage is proved again: good and bad in every character are just two sides of the same coin. It is simply not possible to separate them, to opt for the positive and get rid of the negative.

We are convinced, then, that autistic people have their place in the organism of the social community. They fulfil their role well, perhaps better than anyone else could, and we are talking of people who as children had the greatest difficulties and caused untold worries to their care-givers.

The example of autism shows particularly well how even abnormal personalities can be capable of development and adjustment. Possibilities of social integration which one would never have dreamt of may arise in the course of development. This knowledge determines our attitude towards complicated individuals of this and other types. It also gives us the right and the duty to speak out for these children with the whole force of our personality. We believe that only the absolutely dedicated and loving educator can achieve success with difficult individuals.

Conclusion

Now, at the end of the paper, one ought to discuss the literature, but this would not be very fruitful at present. One should investigate in what way the type of child described here relates to existing typologies. While I do not believe in a perfect systematic typology, the concept of type can be useful in certain cases, and this I have tried to prove in the present investigation.

The literature on personality types certainly includes those who show similarities to the autistic personality. There is E. Kretschmer's schizothymous personality, E. R. Jaensch's disintegrated personality and, above all, the introverted personality described by C. G. Jung. In the description of the introvert, in particular, there is much that is reminiscent of the children described here. Introversion, if it is a restriction of the self and a narrowing of the relations to the environment, may well be autism in essence. However, none of the authors mentioned has anything to say about the behaviour of their particular personality types in childhood. Hence the basis for comparison is largely lacking, and the descriptions are situ-

ated on quite a different level from ours. The debate will undoubtedly become more fruitful when we know what becomes of our autistic children when they are adults. This awaits a later comprehensive study, in which we intend not only to research more fully the biological and genetic basis, but also to look at development beyond childhood. This, then, will offer the opportunity to compare autism in more detail with the characterisations of personality types reported by other authors.

In the present study, our purpose was to report on one type of abnormal child, both because we have first-hand experience of such children, and also because we have a deep commitment to their education. This type of child is of interest not only because of its peculiarities and difficulties, but also because of its relevance to central psychological, educational and sociological problems.